

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 2334

Press

~~Mis.~~

560.564

Dated

27-9-1865

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
27th September 1865.*

No. 560. From the Committee for Weights and Measures, to the Secretary to Government, dated April 1865:—

SIR,

1. We have the honor to submit our views on the subject of remodelling the Weights and Measures of this Presidency, which duty was assigned to us in G. O. dated 7th September last.

2. After much consideration, we have come to the conclusion that the system proposed by Mr. W. H. Bayley in 1857, though it be not scientifically the most perfect, is practically the best in the present circumstances of this Presidency, and with one modification we recommend its adoption, as promising the greatest advantages, and causing the least inconvenience to the people.

3. As regards Weights, we considered it advisable to ascertain the opinions of several gentlemen as to the expediency of retaining the Tola or Rupee of 180 Grains Troy as the unit of weight. The majority of the gentlemen whom we consulted are, as will be seen from their replies herewith submitted, in favor of abandoning the Tola of 180 Grains as the unit of weight, and of assimilating the weights of India to the Avoirdupois weights of England. In these opinions we entirely concur.

4. If the Tola of 180 Grains be retained, it is impossible to assimilate the weights of India to those of England, which we consider a matter of the first importance. There is, no doubt, a certain degree of convenience and advantage in having weights which correspond with current coins, within such limits as admit of the former being tested by the latter; but for this purpose exact correspondence is not necessary. New coins are not always procurable, nor even with them can exact accuracy be attained. Practically, we believe that the test by coin is rarely resorted to, and there are very cogent objections to basing the weights of a country on its currency, when that currency is liable to change and open to improvement.

5. The English Avoirdupois pound, which there is little doubt will be retained for many years to come, whatever changes may be made in its multiples and sub-multiples, contains 7,000 Grains Troy, and a fortieth part of it would give a Tola of 175 Grains, being only 5 Grains less than the present Rupee, a difference too small to vitiate the test by coins worn by use, as these average only 178 Grains. The only advantages of having weights corresponding with the currency, would thus be attained within limits of accuracy sufficient for all practical purposes. Differing on this point from Mr. Bayley, we would make the Tola unit of weight, as distinguished from the Tola of currency equal to 175 Grains, and starting with this we would adopt Mr. Bayley's proposal of having a Seer of 2 lbs. Avoirdupois, sub-divided by sixteenths, with a Maund of 100 lbs. and a Candy of 2,000 lbs. as the higher denominations.

6. The present standard weights of the Madras Government do not recognize the "Seer," but there can be no doubt that, as observed by Mr. Bayley, it is very generally known throughout India, and that its most general equivalent is 80 Tolas.

7. The binary scale is the one with which the people of this country are most familiar, and is the facility of introducing any new system of weights depends very materially on the degree in which it adapts itself to the convenience, the usage, and education of the people in their ordinary transactions, it is desirable that the Seer should be sub-divided on the binary principle. In large mercantile transactions, on

Comptroller

the other hand, the decimal system is undoubtedly the most convenient, and as there is some probability of its being adopted in England, it would, we think, be well to make the Maund and Candy equal to 100 lbs. and 2,000 lbs. respectively, and thus escape the chance of another change being rendered necessary before long.

8. The following table shows the different weights which we now beg to recommend:—

	Grains.
1 Tola	= 175
80 Tolas = 1 Seer	= 14,000
50 Seers = 1 Maund	= 700,000 = 160 lbs.
20 Maunds	= 1 Seer = 2,000 lbs.

The Seer would be sub-divided into—

$\frac{1}{2}$ Seer	= 7,000 Grains = 1 lb. = 16 Tolas
$\frac{1}{4}$ "	= 3,500 " = $\frac{1}{2}$ lb. = 8 Tolas
$\frac{1}{8}$ "	= 1,750 " = $\frac{1}{4}$ lb. = 4 Tolas
$\frac{1}{16}$ "	= 850 " = $\frac{1}{8}$ lb. = 2 Tolas
$\frac{1}{32}$ "	= 425 " = $\frac{1}{16}$ lb. = 1 Tola

In like manner the Maund would be sub-divided into the—

$\frac{1}{2}$ Maund	= 50 lbs.
$\frac{1}{4}$ "	= 25 lbs. (the present Madras mercantile Maund.)

If, however, it be considered desirable to follow the Avoirdupois system closely, then the Maund might be made equal to 56 Seers, or 112 lbs., the quarter and half Maund being respectively 28 and 56 lbs., while 20 such Maunds would be the present Ton of 2,240 lbs. The Maund and Candy we propose though not corresponding with the present Cwt. and Ton of England are easily convertible into them.

LINEAR MEASURE.—We concur with Mr. Bayley, that the English yard and foot should be adopted, with, however, the present English sub-divisions. The English linear measures are now largely followed by the people, and are exclusively used in the extensive transactions of the Public Works Department and Mercantile firms.

LAND MEASURE.—In the Revenue Survey, which is now in rapid progress, and is to be carried out in every District of the Presidency, the English Acre with decimal sub-divisions is solely used. We recommend, therefore, that the Imperial Acre decimally sub-divided, be adopted by Government.

MEASURES OF CAPACITY.—We consider Mr. Bayley's arguments in favor of a Seer exactly equivalent to an Imperial Quart to be conclusive, and we recommend the adoption of this measure, sub-divided by eighths with a multiple of 100 Seers as proposed by him. Heaped measures should not be recognized, and we would recommend that the dimensions of the measures should be defined by Law.

We have not thought it necessary to trouble Government with a lengthened statement of the reasons which have led us to recommend the adoption of Mr. Bayley's scheme, which, we may remark, has met with very general approval, and was presented to Government of India six years ago by the Government of Madras.

For the introduction of new weights and measures a Legislative enactment is undoubtedly necessary, but the change should be restricted at the outset to the

chief towns of the Presidency, the being allowed and facilities afforded for the purchase and alteration of the weights and measures in use, at as little expense and trouble as possible. The new system would of course be adopted, after sufficient notice, in all Government transactions, on the Railways, in the Salt, Customs, and other Departments.

(Signed) J. CARPENTALE, Colonel, R. E.
(") D. SIM

No. 561. **MINUTE BY THE HONORABLE THE RESIDENT.**

1. I have read the Report of the Committee appointed to consider the best system of weights and measures of this Presidency. The following is the substance of the recommendations contained in this Report:—

A Tola, or Rupee of 175 Grains, instead of 180 is to be the unit of weight.
80 Tolas = 1 Seer or 2 lbs. Avoirdupois.
50 Seers = 1 Maund or 100 lbs.
20 Maunds = 1 Candy or 2,000 lbs.

2. The Seer would be sub-divided into $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$ parts, equal respectively to 40 Tolas, 20 Tolas, 10 Tolas, 5 Tolas, and 2½ Tolas.

3. In like manner the Maund would be divided into $\frac{1}{2}$ Maund = 50 lbs., $\frac{1}{4}$ Maund = 25 lbs., which is equal to the Madras Mercantile Maund.

4. As regards Measures of length, the Committee propose to adopt the English Yard and Foot. For Land Measures they recommend the Acre divided decimally; for Measures of capacity they adopt Mr. Bayley's recommendation of a Seer, equivalent to an Imperial Quart, and they propose to divide into eighths for lesser measures, and to multiply it by 100 for larger measures.

5. The Committee in point of fact adopt generally the recommendations of Mr. Bayley, and save themselves the trouble of making specific recommendations by referring to the report of that gentleman.

6. And now as regards the particular recommendations submitted. The Committee, while they point out the absence of all necessary connection between the standard of weight, and the current coins of the country, are disposed to maintain the Tola as the unit of weight; but they propose to retain the name only, and to separate altogether the coin from the unit of weight, by making the latter 175 Grains; while the coin, at all events for the present, will retain its standard weight of 180 Grains.

7. I am disposed to believe that this will be the simplest mode of getting over a difficulty without running too much counter to native ideas, fancies, or prejudices. The change, however, will make the present Rupee utterly useless as a weight unless the Act also says that a given number of Rupees, say 35, shall be equal to 36 Tolas.

8. If, as stated, the Seer is well known, and used as an equivalent to 80 Tolas, it would certainly be advisable to retain an established weight at its nominal value of 80 Tolas or 2 lbs. Avoirdupois, and to start from this fixed point both upwards

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Names of gentlemen to whom
the letter on the Poudernary system
of Madras was forwarded -

✓ J. W. B. Dykes Esq. Collector
of Bellary -

× W. M. Cadell Esq. Collr of
Tanjore -

✓ G. L. Morris Esq. Collector of
South Canara -

× R. M. Puckle Esq. Dist. Dist.
Rev. Settlement, Trichinopoly -

✓ G. Banbury Esq. Acting Col-
lector of North Arcot -

✓ Honble C. Pelly -

✓ M. A. Brett, Esquire -

✓ J. Clarke Esq. Member Bd. of Reve-
nue, Tranquebar -

✓ C. W. Peade Esq. Collector of
South Arcot -

✓ W. Hudleston Esq. Secretary to
the Board of Revenue -

✓ Honorable R. S. Ellis C.B. -

✓ J. J. Murchison Esq. Collector
of Kurnool -

✓ P. Grant Esq. Collector of
Combatore -

33 M. Robinson Esqre. Inspector Ge-
neral. Mad. Police -
34 L. C. Innes Esqre. Caudel Judge
35 of Putacammund -
3 J. Rhoads Esqre. Inspector Gene-
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G. A. Ballard Esqre. Collector of
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R. A. Dalzell Esqre. Sub-Sect
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W. Thomas Esqre. Sub Collector
of Salem. Aspoor -
D. F. Carmichael Esqre. Collector
of Vizagapatam -
V. H. Levinge Esqre. Collector of
Madura -
Col. W. K. Worster. Barrack Master

Col. C. A. Orr. Sect. P. M. Dept. -
A. R. Pogson Esqre. Asst. Astronomer -
J. Cuchterlong Esqre. Putacammund -
G. Fisher Esqre. Madura -
M. R. R. C. Rimpachari. Asst. Asst. to the Muz
Commissioner - Madras -
F. C. Brown Esqre. Anjankang. Nel-
lucherry -
V. Ramengar. D. C. Sect. Salem -
A. Seshiah Sastrosloo. Special Asst.
to the Muz Commissioner. Cann-
hatone -
M. R. R. C. N. Ranganadham Sastri. Judge
of the Small Cause Court - Madras -
Honble G. Luchmunarassoo Chettygar.
J. Gordon Esqre. Wythory - Wypad -
J. W. Muichin Esqre. Chaviman. S. B.
Wypad Planter's Association Goda-
loor -
W. G. McEwen Esqre. Asst. Cuckona
Plantation - Putacammund -
M. R. R. R. Ranganadah Rao. Treasury D. C.
Collector - Trichinopoly.

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Dr. Quarter. Supt^r School of Indus-
trial Arts.

Revenue Board Office,
Fort Saint George,

11th August 1851.

From

W. A. Bayley Esq.

Secretary to the Board of Revenue

To

J. A. Rudleston Esq.

Collector of Madras

Rev. Dept^y -

Sir

With reference to your letter of 2nd July
1851, I am directed by the Board of Revenue to inform
you that as there appears but little difficulty in
introducing the Standard Weights and Measures
of the Government Proclamation in the Gazette
of 1846, you will be good enough to make an Esti-
mate of the Expense that would be incurred in
providing a sufficient Number of new Weights
and Measures.

*page 969

13th January 1852

2. With reference to the order of Govern-
ment quoted by you, the Board request you
will inform them if the Assay Master has ever
since that date adjusted any Measures or Weights
for your Office according to the Old Standard.
They would also wish to know where the
Standard

Standard "Puddie" and Mersal of your Office were originally obtained, as they do not agree as to their contents with the capacities laid down in all the Almanacs since 1801 - as noted in the Margin -

Almanac of 1801.
 1 Puddie = 3 1/2 lb Avoir.
 1 Mersal = 750 cubic inches.

3 - The Mersal to which you are in the habit of fixing your Official Stamp contains (35 1/2 inches Diameter by 8 3/10 deep) close upon 840 cubic inches, or 12 per Cent above the Mersal of 1801 and 5 per Cent more than that fixed as "Standard" by the Government Proclamation -

4 - There also appears to be some error in the weights of the Rice and Grain in the Enclosure to your letter - From several Experiments made by the Board's directions a Mersal of 840 cubic inches in such as your's would contain about 955 lbs Total weight of Pure Rice and 1020 Total of Coalties, whereas your results are given at 961.5 and 960.3 respectively. It does not appear possible that any varieties of these two kinds of grain can weigh the same -

5 - The Board also wish to be informed whether your Office has been

in the habit of stamping the weights and the Measures for the Commisariat and Police according to the Old Standard, and they also wish to have some information as to the contents of the "Puddie" as stamped by you shewing its contents in Total weight of Water - Rice - and Coalties -

6 - Lastly I am directed to obtain from you a List of the stamping Department of your Office, and you will be good enough to state what changes have from time to time taken place as to this Department of your Office referring by marginal note to the dates of correspondence on the subject with the Board of Revenue -

Revenue Board Office,
 Fort Saint George,
 11th August, 1851 -

I have &c
 Signed W. H. Bayley
 Secretary

Extract from the Proceedings of the Board of Revenue
 Dated 10th November 1851 -

Read letter from the Coll^y of Madras dated 30th October 1851.
 [Here Enter No 100]

The Board of Revenue request the

the Collector will be so good as to forward a statement shewing the receipts and disbursements for the last 5 years on account of the Stamping Department of his Office, with a Memo. of the rates charged for stamping the different kinds of weights and Measures, as also the dates on which Measures for the Commisariat and Police were last stamped -

2. They desire also to know by what process the Department tests the accuracy of the Measures stamped, whether by Measurement of Superficies or actual tests, and it should be stated what standard is used for that purpose -

3. The Weights and Measures are said to have been adjusted by the Apy Master in 1847. It should be explained whether the Puddee and Meraal sent to the Board's Office were those which the Apy Master adjusted, and whether they are the same as those received from the Police in 1812 -

/ True Extract /

/ Signed W. H. Bayley
Secretary

To
J. A. Huddleston Esq.
Collr. of Madras.

Official

Official Memorandum

The Secretary to the Board of Revenue is directed to request that the Collector of Madras will be so good as to forward to this Office a copy of the statement alluded to in para 13 of his letter dated 7th August 1852: N^o 91, as forming an Enclosure in Mr. Flower's letter of 6th February

In Cons: 12 August 52

1812 -

Rev. Board Office,
Fort Saint George,
12th August, 1852
To

/ Signed W. H. Bayley
Secretary

J. A. Huddleston Esq.
Collector of Madras.

Rev. Board Office,
Fort Saint George,
5th September, 1852

From

W. H. Bayley Esq.
Secretary to the Bd. of Revenue

To

J. A. Huddleston Esq.
Collector of Madras.

Rev. Dep^y Sir

In your letter of August
7th 1852, para 11, you state that when the
Stamping

Stamping Department was made over to your
Office, authority was given for the payment
of 1 Tanam on every set of Weights and Meas-
ures to the Ramalloumy Pagoda.

The Board desire me to en-
quire of you if there is any authority to
be found in your records for this pay-
ment, beyond the note appended by
W^m Ellis dated October 25th 1813 on the foot
of the Original Enclosure in W^m Flowers
letter of 6th February 1812.

I have &c.
Rev. Board Office,
Fort St. George } / Signed W. A. Bayley
6th September 1852 } Secretary

/ True Copies /

W. A. Bayley
Secretary

W. A. Bayley

1853
 29-24-1853

1853

Copy of a letter to the
 of Madras dated 11 August 1853
 to the Secretary to the
 Board of Revenue to
 the Government of India
 13th December 1852.

1853

Enclosure
 in proceedings from
 the Secretary to the
 Board of Revenue to
 the Government of India
 13th December 1852.

Enclosure 1.
 From Madras Almanac of 1801.
 Madras Weights and Measures.
 Weights.
 10 Pagodas = right make 1 Pollam ———— 16 — 1 1/2
 10 Pollams ———— 1 Viss ———— 3 — 2
 8 Viss ———— 1 Maund ———— 25 —
 20 Maunds ———— 1 Candy ———— 500 —
 Gold wrought or unwrought to be sold by the current
 Pagoda weight, paying each Pagoda 2 dwt. 1/2 grs. Troy.

Grain or Dry Measure.
 1 Oluck measure ———— 17 — 1/2
 8 Oluck's make 1 Measure or Paddy ———— 93 — 1/2
 8 Measures ———— 1 Mercal ———— 750 —
 5 Mercals ———— 1 Surrah of Channam. ———— 3750 —
 1000 Mercals ———— 1 Garce ———— 300000 —
 The Mercal and lesser measures were ordered when made of
 wood to be round and rimmed with Iron or Brass, and to
 be 9 and three sixteenth inches deep, and 10 and three sixteenth
 inches Diameter inside, and to hold 27 lb 2 oz.
 2 dr. avoirdupois of fresh well water.
 N.B. When Grain is sold by weight, 925 1/2 lb are
 allowed to a Garce.

* These dimensions give
 a Content of 750 Cubic
 inches.

Liquid Measure.
 The Measure or Paddy, by which Milk, Ghee, Oil and some
 other liquids are sold, is equal to the Paddy in grain measure
 containing 8 Olucks, but for Wine, Spirits and some
 other Liquors, the English measures are used.

Land Measure.
 60 Feet long and 20 Feet Broad are 1 Acre — containing 4800
 Square Feet — 24 Grounds are 1 Cawny, of 57,600 Square Feet.
 The Indian Cawny is in proportion to the English Acre
 as 128 is to 160.

* Nearly, for the Wine
 Gallon is 231 Cubic
 inches.

P.S. In the Almanac of 1803 the Oluck = 1 1/2 Gills
 The measure = 1 = 1 1/2 (128 Gills) and 20 Olucks = 1 Gallon.
 also 8 Measures = 1 Maund of 3 — 1 — 2 1/2, and 20 Maunds = 1
 Candy of 6 1/2 Gallons.

W H Bayley
 Secretary.

Enclosure 2.
From a Book entitled: "Tables of the various
Weights & Measures used, and correct Batley Tar-
bles made use of at the different Ports in the
East Indies". Author not named.
London MDCC LXXVIII.

Fort St. George or Madras.

Gold and Silver Weights.

1 Pagoda	is	$\frac{100}{2-14-100}$	45 Troy	52-75
9 1/4 Ditto				
8 Ditto	1 Dollar	is	17-11	
100 Dollars			38-1-17	
100 Venetian Ducats			11-5	
100 Gubbers at a Medium			10-17-12	
1 Rupee			7-11	179
100 Ditto			37-5-20	

Great Weights.

10 Pagodas	is 1 Dollam	equal to	$\frac{16-0-16}{2-10}$	Avoirdupois
8 Dollams	is 100 or 9 Oz.	Troy	9-10	$\frac{3}{54}$ lb.
5 lb.	is 1 lb.		25	
1 Maund	is		500	
20 Ditto	is 1 Candy		133 1/2	
1 Picul	is			

Green Measures.

1 Measure	weighs about	$\frac{16-0-16}{2-10}$	Avoirdupois
8 Ditto	is 1 Meeal	21	
3200 Ditto	is 100 Ditto or 1 Garce	8400	
1 Madras Rupee	weighs $\frac{16-0-16}{2-10}$	Troy	and is better than
English Standard	$\frac{16-0-16}{2-10}$	is 1 lb.	It is Country Touch.
9 1/4 China Touch	98 1/4		

A. D. A. Garce is 9256 1/2 lbs.
1 Madras Pagoda weighs $\frac{16-0-16}{2-10}$ is English Matt. 20-24.
Country Touch 8 1/4 China 86 1/4.
1 Allamquet Pagoda 1-22 English Matt. 23 24.
Country Touch 9 1/4 China 98 1/4.

Enc. 1.

Juan Schuch from
the Por. Pitt Board of
Revenue.

Dated 23. Aug/53.

Just 1530

26/53

1. En-29-2/2/5323
2. En-28

Weights.

- 10 Pagodas & eighties equal to 1 ^{lb.} _{av.}
 10 Pollams ————— 1 ^{lb.} _{av.} or 3 ^{lb.} _{av.} the Board of Police
 8 ^{lb.} _{av.} ————— 1 Maund or 25 ^{lb.} _{av.}
 20 Maunds ————— 1 Candy or 500 ^{lb.} _{av.}
 1 Madras Maund is equal to ————— 66 ⁷/₃₇₇ decimal
 Parts of a Surat Maund —————
 1 Madras Pollam weighs ————— ¹/₁₄ ^{lb.} _{av.} 3125 Troy.
 1 Ditto Pagoda ————— 2 ¹/₁₆ 8316 ^{lb.} _{av.}

Liquid and Dry Measure.

- 1 Measure is equal to 1 ¹/₂ pint English of 1.23 Cubic Inches.
 8 ^{lb.} _{av.} ————— 1 Mercat ————— of 3381 ^{lb.} _{av.}
 100 Mercats ^{lb.} _{av.} ————— 1 Garce of 1353600 —————
 1 Covid is equal to ————— ¹/₁₈ ^{lb.} _{av.}
 N.B. 1 Measure weighs about ————— ¹/₈ ^{lb.} _{av.} Board of Police.
 8 Ditto ————— 21 ^{lb.} _{av.} 22.0
 3200 ^{lb.} _{av.} is 100 Mercats or 1 Garce which weighs.
 8100 ^{lb.} _{av.} which is 3 ¹/₄ Tons, or 100 Bengal Bazar Maunds.
 of 82.2.2 each.

Coins.

- 80 Cash make ————— 1 Tanam
 36 Tanams ————— 1 Pagoda or 2 ¹/₁₆ ^{lb.} _{av.}
 is 3625 Mauts fine.
 100 Madras Rupees weight ————— ¹/₃₄ ^{lb.} _{av.} 5.20 and are better
 than Standard ————— ¹/₁₆ ^{lb.} _{av.}
 100 Bombay ^{lb.} _{av.} ————— are better than Standard 10 ¹/₂
 N.B. 36 Tanams to a Pagoda is the Exchange, by which
 all the servants belonging to the Company receive
 their salaries; but in the Bazar the general Exchange
 in Trade is 10 to 12 Tanams for a Pagoda.

W. H. Bailey
Secretary.

25 Cambridge Square, Hyde Park, London
Oct 8th 1864

To The Chief Secretary to Government
Fort St George

Sir
I shall be obliged if you will with
the permission of Government forward the
enclosed "Memorandum" to the Committee
appointed to revise the system of Indian
Weights and Measures.

I have the honor to be

Sir

Your most obedient servant

W. A. Bayley

Late of the Madras Civil Service.

Memorandum

Observing among the Papers ordered to be
printed by the Governor General, on the
subject of Indian Weights and Measures,
a Paper of my own, drawn up in the year
1857 proposing a scheme for an uniform
system, I am led to believe that the
Committee to whom this Paper has been
referred; may wish to know whether in
the course of the eight years that have since

question of weights, the experiment suggested by the
tee appears never to have struck any one before.
ved that one of the standard coins of the country
it of weight,—and there is great advantage to be

Encd R

By and Delivered from
the Secretary of the
Board of Revenue
Dated 23rd Decr 1864

Ln 530

26/50

L 18530
R. No 28
In Com 29 2/1453-803

Revised. I have found reason to alter, or
modify my opinions.

I can only say that both in India
and in England I have repeatedly given the
subject my consideration, & have talked
it over with others; but have been unable
to find any scheme better to my mind than
the one I proposed in 1857, namely that
for Linear, Superficial and Land Measure
the British equivalents should be employ-
ed; for a unit of Weight the Seer of 2 lbs.
Avoirdupois, & for Measure the Imperial
Quart: these two to have decimal multi-
ples, but binary sub-multiples, or divisions.
I still think that in the Courts of Law
or Magistracy heaped measure should
not be recognized; but I would not go
so far as the English Law in making
heaped measure liable to penalty. I
still think that nothing but a compulsory
enactment will ensure uniformity, but
I would begin with large Towns, Ports, &
Cantonments, and gradually extend the
operation of the Law.

Objections has been taken I find
to my proposed unit of Weight, as being

a broken number ($77\frac{3}{4}$) of Tolas; but I beg to
observe, as may be seen by reference to para-
35 and 57 of my pamphlet that I gave this
as a convenient, close approximation, &
not as a definition. I proposed to define
the Seer Weight as 2 lbs. Avoirdupois.

I think however that we may obtain a
still nearer approximation, if we consider that
used rupees must be employed, by taking
78 rupees as an equivalent, quite near enough
for any private testing, for official testing
would of course be with certified Weight
and not with worn coin. If we allow
 $\frac{1}{2}$ a gram loss of weight in each rupee for
wear, 78 rupees should weigh only 1 gram
more than 2 lbs. avoirdupois. $39 \text{ rupees} = \frac{1}{2}$ a
Seer Weight; $19\frac{1}{2} \text{ Rs} = \frac{1}{4}$ Seer, and $9\frac{3}{4} \text{ Rs} =$
 $\frac{1}{8}$ Seer. and this would so far meet the
objection made by the late Capt. Jacob
and others, that a 2 lbs. Seer would not
give binary subdivisions in coins of the
country, as the present Seer of 80 rupees
weight does. If double annas are again
coined, we should have subdivisions to
 $\frac{1}{16}$ th of a Seer.

If we allow a loss of $\frac{1}{2}$ a gram in each

question of weights, the experiment suggested by the
Committee appears never to have struck any one before.
I would that one of the standard coins of the country
be of weight, and there is great advantage to be

super for water, the equivalent weight of water in a quart of 69.318 cubic inches, must be slightly modified from 97 super weight as proposed by me, to $97\frac{1}{4}$ super, of course in use. This would exactly give the weight of water in a quart, at a temperature of 85° Fahrenheit, as may be computed from the Table printed at the end of my pamphlet.

It may still be a question whether a new Indian system should be deferred till it is settled in England what system is to be legalized here: my own opinion is that the settlement of the question in India should not be delayed, for each year adds to the inconvenience now experienced, and after all, it is very improbable (as far as I can judge) that the French system will ever come into use in England, even if Mr. Ewart's pro missive Bill does pass next Session.

There may be alterations in the multiples & submultiples, decimally, but the inch, foot, yard, pound, and quart are introduced into India, they will still fit in to the British arrangement.

I beg also to bring to the notice of the Committee, that though among the Papers printed by order of the Governor General, there is a very detailed one in the varieties of measure and measure in the Districts of the Bengal Presidency, no notice is taken of the Pipes of wine in the varieties of Weight & Measure in the Madras District, and which Paper was printed by the Madras Government in March 1859. I mention it chiefly lest the Committee should attach undue importance to the Official measure of capacity of 100 cubic inches to the Madras measure of pichdee, and 800 cubic inches to the Madras measure. Such a standard looks very well on paper but in practice it has never been known. Except in 2 or 3 localities in the whole Presidency.

The fact is, that the Madras Government in their Public Notification, of 16th Oct. 1846, adopted this Standard in consequence of the recommendations of a Committee in 1839. I have shown, in paras 80 and 81. of my Paper of 1859, and in its appendix D that the Committee

question of weights, the experiment suggested by the Committee appears never to have struck any one before. I have shown that one of the standard coins of the country is of weight, and there is great advantage to be

were altogether mistaken, and that had they
computed the contents of the mercurials they
examined by the weight of water held by
them, instead of taking the depth and
diameters, and computing, them as true
cylinders, which the Committee expressly
state they were not, they would have
found an average capacity of 828 $\frac{1}{2}$
and not 800 cubic inches.

I have shown in the same Paper
(paras 29, 40, 42) that in the year 1801
the Standard mercurial in London
had a capacity of 832 cubic inches; that
in 1819 Major de Haveland found it 834
(though for certain reasons he proposed
a reduced capacity of 828); that of the
three stamped mercurials examined by the
Committee in 1839, two had a capacity of
828, and one of 840 cubic inches; that
the Standard mercurial of the Collector's
office, used as a test before stamping, was
found by me at the Board of Revenue
in 1852 to have a capacity of 832 cubic
inches, and the Measure or Pudding 104
cubic inches. Even to a later date
than this, and even now I believe, that

Standard Measure, as others, has been in use in
the Madras Bazaar and Custom House
of the Government dealing
(para 77 of my Paper of 1859) to enforce
the nominal standard of 800 cubic inches.

The De Haveland measure of 828 $\frac{1}{2}$ cubic
inches has since 1819 been the only one
used at the Government Salt Depots,
but it would be better to use Weight in-
stead of Measure, the latter being open to
easy fraud as I know by experience.

I would observe that in my pamph-
let of 1857 I use the term "metrical"
to mean "that which appertains to Measure
(and Weight)". The term has lately
come to mean the French system
as derived from the "Metre."

In this Table at the end of para 57 of my
Pamphlet of 1857 there are some errors in the
decimal places, at foot of columns 3, 4, and 5
but only to 100th of a cubic inch.

In the footnote to para 9 of my Paper of
1859, "828" should be "834".

W. H. Burley

London. Oct 8th 1864

tee appears never to have struck any one before.
wed that one of the standard coins of the country
it of weight,—and there is great advantage to be

MADRAS, 16. November 1864.

To

SIR,

1. We shall be obliged by your favoring us with your opinion on two questions of importance connected with the Ponderary system of this Presidency, viz.:-

I. The expediency of retaining the Tola or Rupee of 180 Grains Troy as the unit of Weight.

II. The expediency of assimilating the weights of this Presidency to the Avoirdupois weights of England:

2. The arguments in favor of retaining the Tola or Rupee as the unit of weight are the facility it affords for testing the weights in current use within reasonable limits of accuracy, at all times and places, while standard weights might not be available; the fact of the current coin having always been the unit of weight in this country; and the consequent familiarity of the people with such an arrangement.

3. The arguments against the retention of the Rupee as the unit are the impossibility of assimilating the weights of India to those of England, and the contingency of the Rupee itself being at some future time altered. There is no necessity for basing the weights of a country on its currency; and it is a question whether it is advisable so to enhance the difficulties attendant on a change of the currency, should circumstances ever render a change necessary.

4. You will perceive from the above that the questions we ask really resolve themselves into this, "Is it most desirable to assimilate the weights of India to those of England, or to retain the Rupee of 180 Grains Troy as the unit of weight?" It is impossible to do both.

question of weights, the experiment suggested by the
tee appears never to have struck any one before.
wed that one of the standard coins of the country
it of weight,—and there is great advantage to be

5. We append a table showing the result of retaining the present Government weights, of adopting the present commercial weights of the Presidency, and of adopting the English Avoirdupois. In this table we follow the subdivisions usual in this Presidency.

We beg the favor of an early reply.

We have the honor to be,
Sir,
Your most obedient servants,

	Government Standard.	Commercial.	English Weights.
	Lbs. oz. drs.	Lbs. oz. drs.	Lbs. oz. drs.
1 Tola	0 0 6.58 or 180 grs.	0 0 6.66 or 182.29 grs.	0 0 7.46 or 204.16 grs.
8 Tolas = 1 Pollum	0 1 3.75	0 1 4	1 0 6.4
40 Pollums = 1 Viss or seer	3 1 5.94	3 1 2 0	3 8 0
8 Viss = 1 Maund	24 10 15.54	25 0 0	25 0 0
20 Maunds = 1 Candy	493 8 0	500 0 0	560 0 0
4 Candies = 1 Ton	1,974 0 0	2,000 0 0	2,240 0 0

317
 1 Tola = 0 0 7.46 or 204.16 grs.
 3 " 1 Pollum = 1 0 6.4
 40 Pollums 1 Viss = 3 8 0
 8 Viss = 1 Maund = 25 0 0 = 1 Quintal
 20 Maunds = 1 Candy = 560 0 0 = 5 Cds. or 1/4 Ton
 4 Candies = 1 Ton = 2240 0 0

question of weights, the experiment suggested by the
 ttee appears never to have struck any one before.
 wed that one of the standard coins of the country
 it of weight,—and there is great advantage to be

WEIGHTS, MEASURES,

AND

CURRENCIES

OF

INDIA.

MADRAS:

PRINTED AT THE MADRAS ADVERTISING AND PRINTING
COMPANY'S PRESS.

1864.

question of weights, the experiment suggested by the
committee appears never to have struck any one before.
We find that one of the standard coins of the country
is of weight,—and there is great advantage to be

WEIGHTS, MEASURES, AND CURRENCIES OF INDIA.

The surprising rapidity with which the Foreign Trade of India has increased during the last ten years, will form a prominent feature in the Indian History of the present time when some future Froude or Macaulay takes it in hand. These ten years, too, include two years of anarchy, and yet a steady annual increase of Exports and Imports has so eminently distinguished the time, that the hopes of the most sanguine speculator must have been more than fulfilled.

Mr. Cassels of the Bombay Chamber of Commerce states that the trade of Bombay alone has increased nearly 250 per cent. since 1854, and the Trade Returns of Calcutta and Madras, exhibit a similar expansion. I annex a statement of the aggregate Imports and Exports of Madras from 1854-55 to 1862-63.

Years.	Merchandise.	Treasure.	Total.
1854/55 ..	430,73,045	+ 145,82111	= 576,55456
55/56 ..	523,04,781	+ 181,35446	= 704,40277
56/57...	602,53,222	+ 203,92260	= 806,45482
57/58...	650,50,614	+ 303,24028	= 953,74642
58/59...	631,08,215	+ 200,24743	= 831,32958
59/60 ..	686,89,833	+ 219,87228	= 906,77061
60/61...	762,54,150	+ 297,14519	= 1059,68669
61/62 ..	887,86,399	+ 289,44386	= 1177,30785
62/63 ..	938,89,138	+ 365,77441	= 1304,66579

In connection with so vast and rapid a development of trade, no subjects better deserve the attention of Government, and of all interested in India, than the three following :—

I. The establishment of a Gold Coin in the place of the present Silver Rupee coin.

II. The introduction of uniform Tables of Weights and Measures for our territories in India, so as to assimilate the Standard Weights and Measures of India with the Standard Weights and Measures of England.

III. The improvement of, (that is, the increase of circulating power to), the present Indian Paper Currency.

question of weights, the experiment suggested by the committee appears never to have struck any one before. I have seen that one of the standard coins of the country is of weight,—and there is great advantage to be

The more these subjects are ventilated at the present time the better and on that account I shall say what I have to say upon each of them, in the order in which I have set them down.

THE INTRODUCTION OF A GOLD CURRENCY.

As Sir Charles Wood said in his Financial Despatch to the Government of India dated 16th September 1862, "the question of introducing gold into circulation in India is a very important, and a very difficult one. The difficulties are of a practical nature, arising mainly from the uncertainty of the relative value of gold and silver, which is not likely to be determined while fresh discoveries of gold are being made."

That gold and silver are the fittest known materials for a civilised country's currency is a point which I need not discuss. They possess, as every body knows, in a high degree, the properties required to constitute money, and gold possesses these qualities in a higher degree than silver, inasmuch as, among other things, gold possesses fourteen or fifteen times greater value in the same bulk.

Had we to begin *de novo*, as Mr. Wilson remarked, or could we go back to the year 1835, there is little doubt, but that with our present experience we should introduce the English monetary system into India, and establish a gold standard with gold coins as legal tender, and a subordinate silver and copper currency. Since the beginning of the present century, however, our Indian Mints have coined silver Rupees, and in 1835 the Indian coinage underwent its final adjustment to the state we see it in at the present day. The silver Rupee therefore is now the only legal tender, and with copper annas and pies as subsidiary coins, silver performs the functions of currency throughout British India. True in 1841, gold was allowed by the Government of India to be received at all public transactions in payment of taxes. But in 1852 in consequence of the discovery of gold in Australia, the permission was withdrawn.

Having then a silver currency which has done its duty well for many years, some people think it best to let well alone; others think that the substitution of one kind of currency for another well established and long recognised, is liable to disturb existing contracts, to the injury of the individual debtor or creditor, and they deprecate any change on that account. Others acknowledge the advantages of gold over silver, but consider India too poor a country for a gold currency. These and many other objections have been urged, and form some of the "difficulties of a practical kind" which surround the question.

It seems to me that the only way to come to a reasonable decision is to range the objections on one side, and the advantages on the other, and fairly to weigh the two.

The first objection which I shall mention is, that the public debt of India, now over a million sterling, has been contracted in silver, and, in fairness to the public creditor, it is urged that the debt must be discharged in silver.

Without dwelling on the demonstrative fact that perhaps 6-10ths of the public creditors belong to that portion of the community, the mercantile classes, who, as represented by the three Chambers of Commerce of Calcutta, Madras and Bombay, have hitherto been the sole advocates of, and agitators for, a gold currency, I may say that the objection, to stand at all, must be based upon a false assumption and a misconception of the subject.

Mr. Wilson, in his Calcutta Minute, has illustrated the nature of the objection, and the way in which, to the minds of those who entertain the objection, the change from a silver to a gold currency assumes the appearance of a fraudulent breach of faith. If two men "enter into a contract," Mr. Wilson says, "one to deliver and the other to receive a given quantity of wheat at a distant day, however much wheat may have fallen in price in the mean time, the receiver has no right to complain, any more than the deliverer would have, had it in the meantime risen as much in price. But if the person whose duty it was to deliver the wheat, finding that it had risen much in price since the contract was made, sought to deliver barley or some other grain, which in the meantime had become relatively cheaper, the injustice of such an attempt would be plain. But it would be equally unjust after a contract had been made in a silver standard, to change the standard into gold, because it was becoming more plentiful and in relation to silver likely to become cheaper."

Now the fallacy here lies, *firstly*, in assuming that the change to a gold standard is being advocated *because* gold is more plentiful and in relation to silver cheaper, as though the Government thereby were seeking a way to rob the public creditor. *Secondly*, in comparing the public debt to a particular grain which (A), an individual, has contracted to receive, and (B) has contracted to deliver, at a specified date.

When Government opens a loan for a million Rupees, what is it Government wants? Is it so much silver as silver, just as the Commissariat Department wants gram, or rice, or oil, and tenders for gram, or rice, or oil, accordingly? Surely every bond-holder knows better than this, and,

question of weights, the experiment suggested by the committee appears never to have struck any one before. I would that one of the standard coins of the country had been of weight,—and there is great advantage to be

when subscribing to a loan, he does not understand that the Government binds itself to repay him such a weight of silver, but scrupulously the same purchasing power over commodities that he has advanced to the Government. It has been well said, that men do not bargain for signs and measures of value, but for real equivalents. This real equivalent or purchasing power must be expressed in some form or other to mark its amount, and that in India it is conveniently expressed in silver Rupees is not mysterious. In olden times, in countries where corn was generally used as money the amount would have been expressed in wheat, and Mr. Wilson's illustrations would then have been intelligible. It requires, however, little wisdom to see that when Government calls for a loan of 10,000,000 Rupees, it is not a weight of pure silver equal to $10,000,000 \times 165$ grains that is wanted, but a power to purchase commodities to that amount, which power for convenience sake is measured and expressed in silver, because in India that metal is well known and well-established as a common measure of value. When therefore the time for delivery comes round, if Government repay the creditor the same purchasing power, will there be a breach of faith if the repayment is made in gold, that metal in the meantime having been formed into coin, and impressed with a stamp indicative of a certain weight and fineness, so as especially to form a standard by which to measure values? Would not the very converse be a breach of faith? Suppose silver from any cause became valueless, would Government be justified in discharging the public debt in silver for no better reason than that the debt was contracted in a silver medium?

Another objection taken to a gold currency is, that gold is a depreciating metal; that of late years gold mines have been discovered in unusual quantities, and that still further mines may be discovered, or that the productiveness of the present mines may be so much increased as to depreciate the value of gold, in comparison with all other things I may first mention that the anticipation, at one time generally entertained, that gold would materially fall in value in consequence of Californian and Australian gold discoveries, has not been realised. Increased commercial activity has gone hand in hand with the increased supply of gold, and has absorbed all excess. Were gold however to fall greatly in value,—and in spite of all experience to the contrary, such a thing is possible they say,—gold being over-valued as compared with silver, individual debtors would pay in gold to the creditor's loss, and the present silver currency would pass out of circulation and leave the country. In this way too, the land and other taxes being fixed quantities, Government would lose by receiving gold, while Government's

outgoing world chiefly be in silver. Were gold not made a legal tender, except in discharge of Government dues, and were the Rupee in its present form left, for all time to come, to adjust itself at random to the gold coin, there might be cause to apprehend some such embarrassment as above mentioned. But no statesman deserving of the name could possibly suggest such a half and half measure as that gold should be legal tender to A, but not to B. We want a gold standard and a gold legal tender for all India, and to bring about this, whatever little interregnum of confusion may take place while the change is being accomplished, we must steadily work towards a gold currency with silver Rupees passing current as Shillings do in England.

Another objection urged by Major Wingate in an article in the *Bombay Quarterly Review* is that, with gold falling in value (which experience shows us is not likely to be the case) if Government issued a gold currency, Government would deprive itself of a great profit by exchange operations. That Government would take a trade view of a great state question like the present proposal to introduce a gold currency, is not likely, and therefore Major Wingate's objection hardly deserves notice. His anticipation, moreover, of a million and a half profit, falls to the ground of itself on the supposition of a gold currency with Rupees circulating as tokens, that is at a higher value than they are intrinsically worth.

Some have laid much stress on the objection that India is too poor a country for a gold currency. They mean, I suppose, that gold in the shape of 10 Rupee and 5 Rupee pieces is not suited to the necessities of the domestic trade of the country. This has been well enough answered by the *Bombay Times*, which pointed out that Ceylon had had a gold currency for half a century.

The *Economist*, in its issue of June 18, in an article not so remarkable for breadth of view and knowledge of the question, as might have been expected in a paper that claims to be the first authority in monetary matters, puts the following query—"Will gold do equally well as silver in India?"

By way of answering the question in the negative, the writer firstly revives the threadbare controversy of a double standard, and readily shows its obvious inconvenience. Everybody will agree with him. A double standard for any length of time would be fatal. Secondly, he asserts that no statesman conversant with the state of India, "would demonetise silver and choose gold as a basis of value only." The natives, he adds, possess incredible hoards of the one metal, silver, which they know and value, and

question of weights, the experiment suggested by the
tee appears never to have struck any one before.
the standard coins of the country

it would be impolitic in the last degree to awaken a suspicion that you are about to depreciate "the prized medium in which their hoards are composed."

Now herein, as is often the case when people write of a country they have never seen, a general statement is made, and inferences are drawn therefrom, when in truth the statement itself in two or three material points is not borne out by facts, as facts are in India. The natives do not hoard in silver *only*. Of what did the Kirwee-prize, now a *cause célèbre* consist? Did not gold bracelets form a great portion of the booty? I have no hesitation in saying, that, whether in the shape of ornaments, or of plain unfashioned metal, there is a greater inclination on the part of natives in India to hoard gold than silver. And no wonder, for from Alexander's time down to the 14th century, very little else but gold circulated in India. *Perishta* who wrote a History of the Mogul Emperors and some other works at the latter end of the 16th century, positively states that there was no silver coinage at all in the Carnatic. And may I not ask the *Economist* what has become of the 34 millions of gold imported into India between 1854 and 1863? The idea that the people of India would be aroused to another mutiny by a change to a gold currency, is a mere phantom. There are questions involved in taxation, in caste prejudices, in army administration, in civil and criminal law, and such like, which, in their application to India, require the most careful and delicate handling, or God knows what consequences might ensue. But as regards a gold or silver currency, I believe you might with impunity make any reasonable experiment. The History of India from time out of mind is replete with examples of changes of currency. From the time of the Caliphs down to Baber, who founded the empire of the Moguls, each Dynasty set up a currency of its own; and not only Dynasties, but each petty Hindoo Prince had his own mint and coin. Consequently the confusion of ideas so common in the West regarding the precious metals as money, and the precious metals in their unfashioned state, has little existence in India. In the East the art and practice of testing the weight and fineness of Gold and Silver are handed down from father to son, and are as well and commonly known as the Pence table in England. In a great part of China to this day, Gold and Silver do not circulate as stamped coins. How then the proposed Gold Currency "is to inflict on the lower classes of the Indian Community a great injury," I cannot comprehend. What silver the lower classes do hoard, they do not hoard in the shape of Rupees, but in the shape of waist, neck, nose, ankle and wrist

ornaments, and it is not apparent how the silver in these trinkets is to suffer any great depreciation by the substitution of a gold standard.

I have mentioned I believe the chief objections which have been urged against a Gold Currency. I will now set in array the arguments in its favor. Mr. Cassels of the Bombay Chamber of Commerce has set forth some of its advantages in a pamphlet on the subject. The effect of the pamphlet, however, is somewhat marred by his laying too much stress upon the crisis which the Bombay money market went through in 1863, and by his endeavouring to shew that the crisis was solely attributable to the Rupee being the only circulating medium.

Such crises, as a correspondent of the *Times of India* (R. A. D.) very rightly pointed out, are "neither caused nor prevented by the circulating medium of the country whether it be the Rupee, or the Sovereign, or both." No doubt the crisis was aggravated in its nature by the Rupee being the only coin available as a circulating medium, and eventually the crisis, (which would equally have arisen had gold been the circulating medium), became, for all intents and purposes, *entirely* a monetary or coin crisis. At a particular period of the crisis, (I quote from *Madras Times* of 26th February), Mr. Cassels states that 80 lacs of Rupees in silver bullion were lying unassayed and uncoined at the Bombay Mint, when the rate of interest was 24 per cent and the Exchange on England 2s. 2d.

The most conclusive argument in favor of gold is in connection with the Foreign Exchanges. The balance of Trade, as it is popularly called, is in favor of India and China, and 20 millions in gold or silver has yearly to be sent to the East to discharge this balance.

The present system by which Australian gold goes to Europe to buy Mexican silver for discharge of the balance is clearly a dead loss by so much as makes up the difference between the interest and cost of carriage of gold from Australia direct to India on the one hand, and the interest and cost of carriage of gold from Australia to Europe, plus interest and cost of carriage of equivalent in silver from Europe to India on the other hand.

Another advantage that has been urged in favour of gold is that silver is getting scarce in Europe. Mr. Cassels has actually stated that for the last six years India has imported annually *more* silver than the mines to the world produce in a year. I don't know what authority he had for the statement, but it is evidently a mistake, or the price of silver in Europe would have been very sensibly affected, which Mr. Wilson has shewn has not been the case. In the *Madras Times* of the 26th February 1864, Mr.

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Cassels is quoted as stating that "the working powers of the Bombay Mint are inadequate to meet the demand of a silver coinage," and the inference seems to be drawn therefrom that "India has outstripped its circulating medium," or in the words of Mr. Maitland President of the Calcutta Chamber of Commerce, "the silver money of British India is a greater barbarism than the iron money of Sparta." There is no little ambiguity in the words "India has outstripped its circulating medium." Mr. Maitland's explanation, however, solves the puzzle. The only inference, however, which I can draw from Mr. Cassels' statement is, that the Bombay Mint should have its coining power increased; and considering that Ricardo, Locke and others think that *barbarous* silver is better fitted than gold for a country's standard, I don't think much can be urged in favour of gold on the ground of silver in India being "a *greater barbarism*" than Iron in Sparta.

Another argument is in favour of gold which I have not seen noticed anywhere is that the expense of coining gold is much less than the expense of coining silver. In France it is as 0.193 to 75. In Russia it is as 0.85 12.95. In England it is estimated at about 1 to 3. Thus a considerable saving to the State might be effected by adopting a gold currency in India—and were rupees coined and issued on the same principle that shillings are in England, the total saving would amount to a respectable set-off against the wear and tear of a metallic currency.

Another argument in favour of gold, obvious and patent to all, is its great portability, its lightness and little wastage in coining, as compared with an equal value of silver. These qualities, but especially the portability, have peculiar advantages in a country like India, just rising into commercial activity, and where the cost of conveyance, protection and insurance entailed in the transmission of heavy weights of silver over bad roads, or by sea, from one part of the Peninsula to another, is peculiarly burdensome in all places, and in some actually restrictive of trade.

These may be said to be the chief arguments against, and in favour of, gold, and I am of opinion, that, if gold can be introduced without any great disturbance to trade, the sooner we set about it the better.

Where the gold is to come from, and how its substitution for silver is to be effected, are difficulties which strike everybody.

There have been several schemes put forward more or less practicable. Some wish gold to be legalised as a subsidiary coinage only, to the extent of 200 Rupees or thereabouts, ten Rupees being reckoned equivalent to a Sovereign.

Others wish to introduce the English Sovereign and to make it and the Rupee legal tenders; to have a double standard in fact and by authoritative act of some sort, to adjust their relative values from time to time.

Sir Charles Wood on the 10th of June, in reply to a question asked in the House, seemed to look with dismay upon any measure which had for its object the alteration of the standard from silver to gold.

All that he appeared inclined to sanction was the receipt of the English Sovereign at Government Treasuries as equivalent to 10 Rupees, a very harmless measure certainly, when the market price of a Sovereign has been for years past from Rs. 10.8 to Rs. 10.4. Does he expect, the *Spectator* quaintly asks, that the people of India will of their own choice pay debts of a pound with a guinea? How Sir Charles Wood or anybody else can hope for a circulation of Sovereigns in India under such an infantile measure I know not—I need not therefore allude to it again.

No monetary law is better settled than this that of two coins both legal tender, the *undervalued* coin will never make its way into circulation.—McCulloch and other great economists have given several illustrations of this. What happened in England after the great silver recoinage in William the III's reign? The guinea was *overvalued* at 21 shillings and 6 pence of the new silver coins and these latter immediately began to be exported. In 1717 the value of the guinea was reduced to 21 shillings which was still 4d. over its real value, and consequently (we are told) "from 1717 to 1816 no silver coins of legal weight and purity would remain in circulation."

Debtors of course would pay their debts in the *overvalued* coin, and gold became in practice the only legal tender. Advantage was taken of this in George III's time (1774) to enact that "silver coins should not be legal tender for more than £25, but that standard silver should be legal tender to any amount in weight at the Mint price of 5s. 2d. an ounce. And in 1816 it was made Law that gold should be the only legal tender for 40 shillings and upwards.

In France, as Mr. McCulloch informs us, there occurred the exact converse of what happened in England. The French overvalued their silver coins, and the Louisdors disappeared from circulation.

By the light of these two historical examples let us examine the following question; What is the actual value of an English Gold Sovereign expressed in Indian Silver Rupees?

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A pound of British Standard Silver contains 222 dwts. pure silver and 18 dwts alloy; or expressed in grains.

5328 grains pure silver.

432 „ alloy.

5760

These 5760 grains of British Standard Silver are coined into 66 shillings, but 4 of the shillings are retained as seignorage. The consequence of this is, that by the Bullion merchant, who carries his pound of British Standard Silver to the Mint, these 62 coins called shillings, which he receives in exchange, are held in every way as an equivalent return, and whatever his pound of British Standard Silver would have bought, he considers his 62 shillings will buy. The effect of this is to cause 62 shillings to circulate as coin in England, possessing the value, that is the purchasing power, of 66 shillings. When comparing therefore the value of a gold Sovereign with silver it must be remembered that the 20 shillings, at which the Sovereign is rated equal, have really in England a purchasing power equivalent to 21.290 shillings, for as $62 : 66 :: 20 : 21.290$.

Tried by this test the Sovereign is equal to 10.416 of Indian Rupees, for example;—There are 165 grains of pure silver in the Indian Rupee. There are 80.7272 grains of pure silver in the English shilling, and 21.290 represents the true value of 20 shillings circulating as coin in England.

$$80.7272 \times 21.290 = 10.416$$

165

Since writing thus far I have had the advantage of reading Sir Charles Trevelyan's minute on a gold currency for India dated Simla, June 20, 1864. Like most of Sir Charles' minutes it is a discursive and desultory paper embracing a quantity of collateral matter which had better have been omitted, such, for example, as his essay upon the political, moral and economical relations, which ought to exist between India and Australia, Sir Charles says that the late crisis in India of 1863-64 was not caused by any deficiency of the circulating medium but by "the unwillingness of the people of India to accept ordinary mercantile equivalents for the large additional value exported last year; and by the regulations of the Government of India which give an advantage to silver as an article of merchandize, in comparison with gold." I agree so far that the crisis was not caused by any general deficiency of circulating medium, however much aggravated by a want of coin at a particular period, at the three Presidency towns especially. But I disagree altogether with Sir Charles in what, he says, caused

the crisis. Whatever currency had been in circulation, whether gold or silver, on both, there would have been the same violent speculations in Cotton and Bank shares, the same creation of mushroom companies and reclamation societies, the same overtrading in fact, which everywhere ends in a panic and crisis. That such disturbing forces were in operation at the time, especially at Bombay, where the crisis was most severe, cannot be denied.

Sir Charles's remedy for all this is, that "gold Sovereigns according to the British and Australian standard, 11-12ths fine and £3 17s. 10½d. an ounce, coined at any properly authorised Royal Mint in England, Australia or India, should be declared legal tender in India at the rate of 10 Rupees."

Whether this is meant to be a permanent measure, or only for a time, is not expressly stated. If permanent, then for all time to come, India is saddled with two legal tenders and two standards of value, an inconvenience which Locke, Harris and every economist of note has condemned.

There is this satisfaction, that the sovereign has been rated so low that it is hardly likely anybody will tender it in discharge of a debt of 10 Rupees, when its value is more than 10 Rupees, and consequently, as Sir Charles feebly remarks, no great harm can be done. But is this all that a Finance Minister can devise on the question of the day, something that will do no great harm?

With examples of what has taken place in England and France in respect to their currencies, is not some useful, practical and statesman-like measure possible? The anomaly and inconvenience of a double legal tender and a double standard for a limited period cannot perhaps be avoided, for every existing contract and liability, public and private, would certainly be disturbed by any instantaneous change of standard and tender.

I have already stated that in England the value of a gold Sovereign in British Standard Silver is equivalent to 10.416 of Indian money. The local market value of a Sovereign, measured in silver coin at any given time and place, will fluctuate and vary like the value of any other exchangeable commodity, under the varying influence of local circumstances.

We had a good example of this in 1858 when the Madras Government allowed English Sovereigns to be received at the rate of 10 Rupees in the Tanjore and Madura Treasuries in payment of revenue. Some 50,000 Sovereigns were so received when their receipt was peremptorily forbidden by the Supreme Government, on the ground of loss and inconvenience to the State, because Sovereigns happened to be selling in Tanjore at 9 Rupees 14 Annas. From local causes there was a plethora of sovereigns in Tanjore

question of weight; the expedient suggested by the committee appears never to have struck any one before. I would that one of the standard coins of the country had been of weight,—and there is great advantage to be

quite obvious and apparent to the authorities on the spot, but the price and the price were confined to Tanjore and its neighbourhood. The 50,000 Sovereigns were sent to Madras and sold at prices varying from 10 Rs. 5 As. to 10 Rs. 2 As., which, deducting transit charges, yielded a handsome profit.

The local market value therefore of a Sovereign at a particular place, or the particular sum for which Australian and English Sovereigns can be laid down at Calcutta or elsewhere, should not form the *only* nor yet the *chief* subject of consideration in fixing the equivalent at which the Sovereign should, for the present, be made legal tender throughout British India.

The point steadily to be kept in view is the speedy introduction of some measure that will, with least disturbance to existing obligations, attract and maintain Sovereigns in general circulation, and so pave the way for the early establishment of gold as India's sole standard and legal tender. This can only be done by making the gold Sovereign legal tender as well as the Silver Rupee for the present, and by *over-valuing* the Sovereign as compared with its rival.

Now comes the question what valuation in existing Rupees is to be put upon the Sovereign?

In England, which may be called the World's Magazine of Gold and Silver bullion, and where Gold and Silver coins have circulated together for years past, we shall find, with least likelihood of error, the figure *within* which to express the *present* value that Gold in the shape of a Sovereign, should, for a limited period, bear to Silver in the shape of the existing Rupee. I find that 10.416 (that is Rs. 10-6-8) will express in existing Rupees the present exact value of the Sovereign in India.

The average price of Gold however in Calcutta and Bombay has been shewn by Sir William Mansfield and others to be, on an average of years, somewhat above 10 Rupees 4 Annas. Sir Charles Trevelyan moreover states that Australian Sovereigns can be laid down at Calcutta for Rs. 10-2-9.

As I have elsewhere said, Sovereigns, like any other manufactured article, have a local and temporary value which fluctuates with circumstances. We cannot therefore be guided altogether by these fluctuating values, nor, on the other hand, can we altogether ignore the actual average value running over a series of years. Moreover it must not be overlooked that, when Gold is made legal tender, direct trade with Australia and other Gold producing countries, will, as pointed out by the Bombay Chamber of Commerce, bring Gold into India direct from Australia, and pro-

tant to cheapen it somewhat in relation to Silver—much so probably as to place the value of Gold in future, for a few years somewhat *under* 10 Rupees 4 Annas instead of *above* as at present.

All these circumstances considered, and remembering that the lower the rate fixed as the value of the Sovereign, now proposed for legal tender, the less the interference with existing contracts, it appears to me, that, if the rate expressed in existing Rupees approximates to, and is within, the figure at which Gold in England, (the great Exchange Hall of the world), is valued in comparison with Silver, we cannot go far wrong.

10 Rupees 4 Annas I consider such an approximation, with the additional advantage of causing the Sovereign to be slightly overvalued as compared with the sum for which Sovereigns can just now be brought from Australia, and as compared with what will probably be in future the price, for a few years, of the English Sovereign.

So long as India has two legal tenders, the debtors no doubt will have an advantage over the creditors in so far as they will always tender in what is to them the cheaper metal. But as long as we start with correct valuations little need be feared on this head. Experience has very satisfactorily shown that the relative prices of silver and gold vary very little, if at all, in a limited period of years. Nevertheless for perfect security's sake 10 Rupees 4 Annas might be made tentative and subject to readjustment in January 1868.

What remains to be done is very simple. Once the whole of the present silver currency has been sufficiently contracted, and the Sovereign in practice has become the general legal tender, I would make it law in India that gold should be the only legal tender for 20 rupees and upwards, as was done in England in 1816.

Rupees of 175 grains weight should then be coined, that being exactly (within limits of error in weighing) equal to the weight of two shillings.

Weight of shilling.	Weight of new Rupee.
Grains.	Grains.
87.27×2	$= 174.54$
Weight of pure silver in shilling.	Weight of pure silver in new Rupee.
Grains.	Grains.
80.72×2	$= 161.44$

The pound weight of silver should be coined into 33 Rupees of 175 grains weight, containing 161.5 grains pure silver, of which two Rupees should be retained by Government as a seignorage amounting to 6½

question of weights, the experiment suggested by the committee appears never to have struck any one before. I would that one of the standard coins of the country had been of weight,—and there is great advantage to be

per cent. Thus, as in England, a fictitious value would be given to the new Rupee and the coin would pass current for more than its real value, and thereby, having no value in other countries equal to its value at home, it would be neither melted nor exported.

The immense advantage of having the Rupee, our Indian Tola unit, of 175 grains weight will be seen and appreciated when I speak of a uniform system of weights for all India.

A considerable profit moreover would be realised by Government on the coinage of Rupees of 174.54 Grains weight. For, while the present Rupees and Sovereigns at Rs. 10-4 were both legal tender, 1828.4975 Grains of British Standard Silver would be received for each Sovereign. The weight of the proposed new Rupee being only 174.54, this multiplied into 10 gives 1745.4. The difference between 1828.4975 and 1745.4 gives a profit of 4.34 per cent. upon the coinage.

That it is absolutely necessary in every civilised country to have some recognised standard measures of Weight, of Capacity, of Length and of Surface, cannot be questioned. In India unfortunately we have legions of Standard measures. Each Province, nay each District, or Parish, so to speak, has its own standard. So that, in as much as the measure of a thing can only be comprehended by comparison with some established and universally known measures, we are much in the same position in India, with our thousands of locally recognised measures, as if we had no standard measure at all.

Throughout the country, from Delhi to Cape Comorin, we meet with measures of every conceivable denomination, and with the same denominations representing every conceivable quantity. That such is the case is well known to every resident in India, and the inconvenience to the trader and statistic collector is simply intolerable. One illustration will suffice. The seer is a measure of Weight and a measure of Capacity. As a measure of Weight it may represent any number of grains avoirdupois from 3,937½ up to 15,120, according to the locality wherein it is used. As a measure of Capacity the seer is not quite so vague, because there is a seer measure of 80 Tolas which is pretty generally known throughout India; nevertheless there are many other seer measures in use, whose contents in cubic inches will be found to vary in every District in which they are used.

Thus, then, as the multifarious native Indian coins have entirely disappeared from circulation throughout our territories in India, and have

been superseded by the Queen's-head Rupee, surely the time has arrived when the intolerable confusion which prevails in our Indian Weights and Measures, must give way to an intelligible metrical system, sanctioned by the Queen, and common to all British India. Indeed that the time has arrived is generally acknowledged; and already a large amount of correspondence has passed on the subject.

We know how the French in modern times altered the denominations of their weights and measures in accordance with a standard which they obtained by the measurement of an arc of the Meridian, and there seems to be no good reason why a similar reform, should not be attempted in India.

The best and most practical paper on Weights and Measures for India that I have seen, is by Mr. Bayley of the Madras Civil Service. The paper will be found in the *July—September* No. of the *Madras Journal of Literature and Science* for 1837.

Mr. Bayley commences by stating that "no system can be specified which will not be open to some objection, and the object of this paper is simply to propose for the consideration of those interested in the matter, a few different modes of arranging the Weights and Measures, in order that the subject may be well discussed by those qualified to give an opinion, before any one system is authoritatively adopted."

He arranges his subject under four heads, and I shall endeavour to preserve the same order.

1. Measure of Length
2. do. of Surface
3. do. of Weight
4. do. of Capacity.

Had Mr. Bayley's intention been to set forth a system that would provide a perfect corrective for the metrology of India and England, or to adjust the systems of the two into conformity with each other and with some primitive standard, he might have consulted Captain Jervis' mysterious work with advantage. But, as neither the metrology of England nor the numerous metrical systems of India correspond with Captain Jervis' primitive standard,—nor are regulated by it—the simplest and most practical thing to be done is, as Mr. Bayley suggests, to have some system arranged, which will allow of the weights and measures of both countries being in a great measure assimilated.

With regard to linear and superficial measures, the English systems are already in extensive use in India. Our highways are divided into

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miles; Native hawkers and shopkeepers sell by the yard and the foot, and, at any rate in this Presidency, "miles," "yards," "feet" and "inches" are as much household words to a Native as to a European. Indeed in some parts of India, as in the Telooquo country, the measures of length under native denominations not only spring from the same unit of measure which we have practically adopted in our Long measure (namely the inch), but the measures higher up in the scale of quantity run in the groove, as some to speak, as our own. For example:—

12 angulams (or Inches) = 1 Ade (or foot)
 36 do (or Inches) = 1 Gaja (or yard)
 2 Gajas = 1 Bara (or fathom).

I agree with Mr. Bayley in thinking that no difficulty would be found in the general introduction into India (by legislative act) of the English Table of Long measure.

As regards the measure of surface, it does not assume the same importance in the eyes of the great mass of the people as the common trade measures of weight, length, and capacity assume. While the daily dealings of every man in the country would be more or less affected by a sudden change in these latter measures, not one in a thousand would care a straw about the introduction of a different system of superficial measurement. Moreover chains and acres are already in use in most of our Districts, and dimensions and areas in the Village registers and accounts are expressed in those terms. Cawnies, Vaylies, Bigahs, Munsoo Gooles, Bullahs, and such like old native denominations of measurement are still common enough in many up-country districts, but I question whether the ryot attaches much importance to the retention of these particular names. A ryot holds of Government, say 50 cawnies of land, and it has been entered so in the Curnum's register, and in the Ryo's Puttah or *Title Deed*, for generations past. So long as he is left in possession of the same area of land, it will be quite indifferent to him if, in future Registers and Title Deeds, the area is expressed in the number of acres to which his 50 cawnies are equivalent.

Practically speaking, the change is merely one of account, and is apparent only on paper. Moreover, if necessary, the amount of cawnies or vaylies &c., might for a few years be also retained till all had become familiar with the new denominations. Revenue surveys are gradually extending over the country, and, as each district comes under survey, village maps and registers are made and deposited for general reference. In these maps and registers the areas are all computed in acres and parts of an acre.

It would be altogether unprofitable to attempt a summary of even the principal land measures throughout the different provinces subordinate to the Governor General, and the Governors of Madras and Bombay. It would hardly be an exaggeration to say that each group of villages, in the Deccan and Southern India at any rate, had its own local measures, one for wet and one for dry land. In many districts the primitive method of estimating the quantity of land by the seed required to sow it, still prevails. To attempt to harmonise these in any way, one with another, or any number of them with our English Table of Land measures, were a hopeless task.

How such an inconvenient variety of measures came into existence is a problem which I leave to others to solve. Captain Jervis of the Bombay Engineers, in his book entitled *Indian Metrology* has endeavored to do so, and says that the Indian system of weights and measures are all referable to one common standard—the "*hustu or cubit*"—which, he adds, approximates to 19½ inches English. I can however discover no recognised principle common to all, or even to the majority, which will enable me to suggest any positive law regarding the origin of the fixed quantities and proportions represented by the several local metrical systems. As far as the name goes, the cubit or the foot may, in one sense be said to be the primary unit of which the different local measures contain as many or as few as fancy would seem to have directed. But then the length of this cubit or foot measure, in English inches for example, varies everywhere. I would therefore sweep the prevailing native systems away by an Act of the Legislature, and introduce the English Table of surface measure throughout the length and breadth of British India.

In twenty years time the several native local denominations now in use will have become as obsolete and unknown as the thousand and one varieties of native coins formerly current. Subjoined is the simple table of Surface Measure I would propose for all India.

144 Square Inches	= 1 Square Foot
9 Square Feet	= 1 Square Yard
22 Square Yards	= 1 Square Chain
30½ Square Yards	= 1 Petch
40 Petches	= 1 Rood
4 Roods	= 1 Acre
640 Acres	= 1 Square Mile

question of weights, the experiment suggested by the committee appears never to have struck any one before. I have observed that one of the standard coins of the country is of weight,—and there is great advantage to be

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As regards a Table of Weights, Captain Jervis clearly shows that "the coins of all nations were anciently synonymous with, or equivalent to, the weights of commerce." The ancient Greek, Roman and Jewish coins equally represented money and weight, and Indian coins form no exception to the rule.

In India the traditional unit of weight has been nearly everywhere the Tola or Rupee; consequently the ponderary Table of each province will be found to bear a relation to the Rupee coin in circulation there. We know that for centuries before the East India Company had a mint, each petty State in India maintained its own mint and coinage, and put into circulation Rupees of every conceivable variety of weight and fineness.

Thus in the Rupee as a Tola unit may be found any number of grains from 170 upwards. Captain Jervis assures us that the Tola of 187.5 grains, as established by Akbar, is the ancient and true standard, and he would have us "in honesty, justice and policy" revert to this. But the present ponderary Tables of Calcutta, Madras, and Bombay, calculated upon a Tola of 187.5 grains, result in most inconvenient numbers, and altogether fail to assimilate with the Avoirdupois Weight of England.

The following is the Table of weights established by Reg. VII of 1833 for the Government of India and approved, Mr. Bayley says, by the Chambers of Commerce of Calcutta and Bombay.

Equivalent in Avoirdupois weight	Grains.	Tolas.	Chittaks.	Seer.	Mun.
6493 dr.	= 180	= 1			
2 2/3 oz.	= 900	= 5	= 1		
2 3/5 lbs.	= 14,400	= 80	= 16	= 1	
82 3/4 lbs.	= 576,000	= 3200	= 640	= 40	= 1
With the Tola equivalent to 187.5 grains.					
6.85 dr.	= 187.5	= 1			
2 1/4 oz.	= 937.5	= 5	= 1		
2 1/4 lbs.	= 15,000	= 80	= 16	= 1	
85.60 lbs.	= 600,000	= 3200	= 640	= 40	= 1

The following is the Table of Weights adopted by the Madras Government and published in the *Gazette* of the 20th October 1864.

Equivalent in Avoirdupois weight.	Grains.	Tolas.	Pollams.	Viss.	Maund.
6493 dr.	= 180	= 1			
2 2/3 oz.	= 900	= 5	= 1		
3 0857 lbs.	= 21000	= 120	= 40	= 1	
24 3868 lbs.	= 172800	= 960	= 320	= 8	= 1
With the Tola equivalent to 187.5 grains.					
6.85 dr.	= 187.5	= 1			
2 28 oz.	= 937.5	= 5	= 1		
3.21 lbs.	= 22500	= 120	= 40	= 1	
25 71 lbs.	= 180000	= 960	= 320	= 8	= 1

If then we are to maintain the Tola unit at all, in deference to prescriptive sanction of long usage, it is evident that a Tola of 187.5 grains will not do, for it will not give a Table of weights more readily convertible into English Avoirdupois than the present Tola of 180 grains, and, unless such ready convertibility can be secured, a change were worse than useless. What then can be done? It appears to me that, unless we can utilise in some measure those of the present native weights which we know to be very generally current and used throughout India, such for example as the Seer and the Maund, and can bring them into simple conformity with English weights, (so great is the inveteracy of ancient custom and usage in such things), we shall make little progress towards the general introduction of one desirable ponderary table for all India. The proposition Mr. Bayley favours is to retain the present Tola weight of 180 grains, and to alter the Seer from 80 Tolas to 77 1/4. I give his own words:—"The Seer of 77 1/4 Tolas" he says "would be only 5 grains short of a double pound, or two pounds avoirdupois; that is, it would be 13,995 grains, instead of 14,000; which would only make a difference of 1.42 lbs. in the proposed new Ton of 2,000 lbs., a difference within the limits of error in weighing. It would be advisable perhaps, to define the Seer legally, as equivalent to two avoirdupois pounds; and it might at the same time be declared that a Seer of 77 1/4 Tolas weight would not be condemned as short. It is, undoubtedly an advantage to have weights which correspond with the coins of the realm, but it never could be intended that testing by coins in use, should supersede testing by certified standards. The assimilation to coin weight is desirable as a means of

the committee appears never to have struck any one before. We find that one of the standard coins of the country is of weight,—and there is great advantage to be

readily checking irregularities, but in practice no one would be able by coins, even if new, to state for certain whether a weight was 80 Tolas within 5 grains. The advantage therefore of a coinage equivalent would remain, if the Seer weight were defined as two pounds English.

The chief objection to a Seer of $77\frac{1}{2}$ Tolas is, as acknowledged by Mr. Bayley, that it does not admit of subdivision—you cannot well halve it, and any other sub-multiple is proportionately more intricate and fractional. This is a great objection, and it is not the only one.

If it is desirable to have our coins and weights in assimilation as an easy check against short measure and so forth, the $\frac{1}{2}$ Rupee-piece can scarcely be said to be as good a check as the whole Rupee. It is so perhaps at present when it leaves the Mint, although it has been recommended, and the recommendation has met with the support of the Madras Government, that the smaller coins should be issued in the form of tokens, (like the silver coinage in England), at a fictitious value and weighed in the gross.

The $\frac{1}{2}$ Rupee piece is no longer weighed. Any how the $\frac{1}{2}$ Rupee piece, by reason of the thinness of the metal, can never receive so bold an impression as the Rupee, and by reason of its greater circulation and greater wear and tear, it lasts a shorter time and never can be as good a standard as the Rupee.

Again, a Seer of $77\frac{1}{2}$ Tolas does not exactly assimilate with English weights. It is equal to 2lbs. minus 5 grains, a small discrepancy certainly, but whether in practice it would not be found objectionable I hesitate to say. It would amount to a good deal in a ship-load. The greatest objection, however, to the Seer of $77\frac{1}{2}$ Tolas seems to me to lie in this, that it supplants the one native weight of all others which is best established, best known and most used throughout India.

The result of a special enquiry into the point was, that as a general rule the Seer weight was 80 Tolas. Wherever you go an intelligent native will generally tell you that 80 Tolas go to a Seer. But will any two natives, in adjoining districts even, agree as to the number of grains in a Tola? If then it be a point of importance, in any change proposed, to run in harmony with native notions of weight, the rejection of the 80 Tola Seer seems to me as fatal a step as could be taken. To me it appears that the 80 Tola seer has obtained such root in India that the seer of $77\frac{1}{2}$ Tolas, if otherwise unobjectionable, would have little chance with its rival.

Even in England innumerable Acts of Parliament were passed to put an end to the confusion there arising from the use of weights of the same name but of different magnitude, and till of late years these Acts had little effect. How would it be in India unless we carried with us, on the surface at least, some of the well known weights used by the inhabitants in their daily dealings?

The present tables of weight established by the Government of India and Madras correspond more or less with, and are indeed founded upon, the various local ponderary Tables used by natives throughout the country. They have now been established many years for Government transactions. They are already extensively used in the native Bazaars of all actions. They are already extensively used in the native Bazaars of all the great towns, and are day by day becoming still more familiarised to the inhabitants as railways tap remote districts and villages. Should we be wise then in rejecting these tables, if by any possibility they can be made to assimilate with English weights?

The only way in which they can be made to assimilate is by reducing the Tola unit (that is the Rupee) to 175 grains. Although 175 grains was the average weight of the many Rupees which issued from the native mints prior to our time, Mr. Bayley considers it impracticable to reduce the Rupee to 175 grains.

If such is the case, of course all further advocacy of my plan is at an end, but I do not think such is the case now. Before going at length into my reasons, I may say that as far as the natives are concerned, it would appear *prima facie* more feasible to reduce the unit of weight, which the mass of the people know nothing about, from an arbitrary number selected by ourselves to a number exactly in accordance with the average weight of Rupees of native governments, than to alter the relative values of weights higher up the scale, which all natives do know something about, which they have daily occasion to make use of, and for which, therefore, they have an obstinate prejudice. In my paper on the introduction of a Gold Currency, I said that, were a change to a Gold Currency determined upon, and as Sir Charles Trevelyan says, "the most striking feature in the movement is the universality of the feeling that India ought to have a Gold Currency," this one point should be steadily kept in view, namely—that, whatever tentative measures may be deemed necessary as introductory to the attainment of our ends, our aim should be the establishment throughout India of one gold standard and one gold legal tender, circulating in the form of gold Sovereigns and half Sovereigns, with an accessory silver and copper token currency as in England.

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Any end short of this, would be a miserable make-shift, obstructive and unstatesman-like. At what period of the present century this end will arrive, and the change be completed, I cannot say. It will depend upon the character of the introductory measures inaugurating the change. But whenever the end *does* come, our Indian monetary system will be formed entirely upon the English model. The Sovereign will be equal to 10 Rupees and the Rupee equal to two shillings. This will make the weight of the Rupee 174.54 grains, that is for all practical purposes 175, for with the present Rupee 1 $\frac{1}{2}$ grains more or less is the *remedy* allowed by Mint Regulations. Given the Rupee of 175 grains, let us see how the Bengal and Madras tables of weights, with a Tola of 175 grains, conform to the English Avoirdupois Table.

BENGAL TABLE OF WEIGHTS.

With the Tola equal to 175 Grains.

Equivalents in Avoirdupois weight.	Grains.	Tolas.	Chittaks.	Seers.	Muns.
0.25 or $\frac{1}{4}$ of a lb.	= 175	= 1			
2 Ounces	= 875	= 5	= 1		
2 Pounds	= 14,000	= 80	= 16	= 1	
80 Pounds	= 560,000	= 3200	= 640	= 40	= 1

The Bengal Table might then run in this manner in assimilation with the Avoirdupois Table.

175 Grains	=	1 Tola	
5 Tolas or 2 Ounces	=	1 Chittak	
8 Chittaks	=	1 Pound	
2 Pounds or 80 Tolas	=	1 Seer	
40 Seers	=	1 Mun	
25 Muns	=	1 Ton	the proposed new ton of 2,000 lbs.

THE MADRAS TABLE OF WEIGHTS.

With the Tola equal to 175 Grains.

Equivalents in Avoirdupois weight.	Grains.	Tolas.	Pollums.	Viss.	Maunds.
$\frac{1}{4}$ of a lb.	175	= 1			
$\frac{1}{2}$ of a lb.	525	= 3			
3-lb.	21,000	= 120	= 40	= 1	
24-lbs.	168,000	= 960	= 320	= 8	= 1

The Madras Table in assimilation with the Avoirdupois Table might run in this manner.

175 Grains	=	1 Tola
3 Tolas	=	1 Pollum
40 Tolas	=	1 Pound
3 Pound	=	1 Viss
8 Viss	=	1 Maund

The Calcutta and Madras Tables amalgamated might run as follows:—

175 Grains	=	1 Tola
5 Tolas	=	1 Chittak
8 Chittaks	=	1 lb
2 lbs or 80 Tolas	=	1 Seer
1 $\frac{1}{2}$ Seer	=	1 Viss
8 Viss	=	1 Maund
3 $\frac{1}{2}$ Maunds	=	1 Mun
25 Muns	=	1 Ton

MEASURE OF CAPACITY.

Mr. Bayley in his pamphlet has, to my mind, exhausted all that can be said upon a standard for the measure of Capacity in India.

"India," as Mr. Prinsep and others have informed us, "does not, properly speaking, possess Dry or Liquid measures."

The Madras Government in 1846 promulgated the following Table of measures for Government transactions.

1 Olluck	=	12 $\frac{1}{2}$ cubic inches.
8 do.	=	1 measure, 100 cub. inch.
8 measures	=	1 merca, 800 do.

It appears never to have struck any one before. We need that one of the standard coins of the country fit of weight,—and there is great advantage to be

But this table has not met with favor among the people, and is not much used except by milk-men who supply Europeans in the Presidency Town.

The only measure of capacity at all universally known is the Seer measure, and this, as Mr. Bayley remarks, "is always understood to be a measure which when heaped will contain a Seer weight of rice" or other grain. The Seer weight best known, and which we still propose to retain, is, as we have already said, the Seer of 80 Tolas.

"In 1852," observes Mr. Bayley, "the Madras Board of Revenue instituted a special enquiry into the Grain Measures of each district. They were found to be of all shapes and materials. Some were in the form of hour glasses, some were joints of bamboo, and some earthen-ware pots; but as a general rule, it was found that they were in most districts intended, when heaped, to contain a Seer weight, or a definite number of Seers, either of rice, or of mixed grain, but usually rice: and the Seer weight was generally that of 80 Tolas."

"The best Seer Measures are about $3\frac{1}{2}$ to $3\frac{1}{4}$ inches in diameter, and 6 inches deep, but they are never true cylinders. Their cubic contents are from 66 to $66\frac{1}{2}$ cubic inches, holding from 74 to 75 Tolas of rice when struck, and 80 when heaped."

For a standard measure of capacity it is obvious that Government cannot have any thing to do with a *heaped* measure. I therefore cordially support Mr. Bayley's proposal which is best given in his own words. "I would propose as a measure of capacity, a vessel to be called a 'Seer,' but exactly equivalent to an Imperial Quart. The present Seer Measure averages a capacity of $66\frac{1}{2}$ cubic inches: the Quart is 69.318. The present Seer-measure contains when struck, about 74 Tolas of rice, or 76 of mixed grain, and about 80 Tolas of either when heaped: the quart would contain 78 Tolas of rice, or 80 of mixed grain when struck, and (with a diameter of 4 inches,) about 86 Tolas when heaped; but heaped measures should not be recognised by Government. I cannot but think that if there exists an English measure which corresponds, (taking struck contents), so closely either to the native Seer of 80 Tolas, or to the Seer of 77 $\frac{1}{2}$ Tolas which I have proposed that it should be adopted, whichever of the two Seers of weight the Government may select."

I have already mentioned that it appears to me especially desirable to retain the Seer weight of 80 Tolas. As to the particular form the Seer measure is to assume, and the relation the diameter should bear to the depth, I think them points of little importance. As long as the general

appearance of the vessel resembles those now in use, it can matter little whether the diameter be to the depth as 4 to 5 or as 4.04 to 5.39. The vessels must all be made up and stamped by Government, and they can be as easily made of one size as of another.

The readiest practical method of ascertaining the magnitude of any vessel of capacity, is to weigh the quantity of water it will contain. With a Tola of 175 grains the weight of water contained by the Quart Seer cannot at any temperature be expressed in Tolas without a decimal. A Gallon of distilled water at a temperature of 62° Fahrenheit will weigh 70,000 grains, a Quart will therefore weigh $\frac{70,000}{4} = 17,500$.

Were 62° a fair Indian temperature the Quart Seer might be defined as containing 100 Tolas weight of distilled water. The average temperature of India, however, would be fixed somewhere between 70° and 90°.

From a memorandum drawn up by Mr. Bate in a letter to the Government of Madras, dated 6th July 1829, a certain number of grains have to be added to, or deducted from 70,000 as the weight of a gallon of distilled water, for every degree of temperature above or below 62°. Mr. Bayley thinks 84° a fair average temperature for India and with the Tola (as at present) 180 grains, the Quart, he says, contains 17,460 grains or 97 Tolas exactly.

By the table, however, from which he has calculated this, the quart contains 17462.09 which is something more than 97 Tolas.

Fractional exactness, however, is altogether immaterial for the purposes for which an easy method of obtaining the magnitude of a measure of capacity is desirable.

That the people of an extensive country like India, speaking different languages and of different castes, should have a ready practical method, without the necessity of troublesome calculations, of gauging the correctness of the measure in which their daily dealings are made, is beyond all doubt advisable. The method, however, must be something so tangible and simple as to be intelligible to the most rustic intellect, and such moreover as can be put everywhere into instantaneous practice.

Neither distilled water nor a particular temperature are everywhere readily procurable, and for practical purposes, I cannot see that either are wanted.

It is sufficient that everywhere with a temperature at any point between 70° and 90° Fahrenheit, a Seer whose capacity is 69.318 cubic inches should contain 99 Tolas weight of water, (the Tola being equal to 175 grains.)

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The Seer measure could then be defined as a measure of capacity of 69.318 cubic inches, containing 80 Tolas weight of mixed grain struck, and 99 Tolas weight of water, and as such it should be the standard unit of capacity, with multiples and subdivisions such as may eventually be decided upon.

Of all the provincial and local terms for measures of capacity, the Seer being the only term universally known and acknowledged, so long as we retain the Seer in its known form, and so long as it contains the weight of grain that the natives consider it ought to contain, it will matter little to them what are its multiples and submultiples. For convenience and uniformity's sake, however, I would establish throughout India one table of measure for capacity, and that the English table for all liquids and dry goods.

4 Gills	= 1 Pint.
2 Pints	= 1 Seer.
4 Seers	= 1 Gallon.
2 Gallons	= 1 Peck.
8 do	= 1 Bushel.
8 Bushels	= 1 Quarter.
5 Quarters	= 1 Load.

In setting about the introduction of the new weights and measures I would suggest proceeding with due caution. Existing measures of all kinds which have acquired a local currency will assuredly find favor with the people, and to attempt any sudden radical change will very likely end in failure and disturbance. The exact *modus operandi* must be well considered in all its details. I will only add in a general way what, among other things, would appear to me to be desirable.

Firstly, numerous sets of the new weights and measures, stamped with the Government Stamp, should be prepared and kept in readiness for distribution at the different places where it is proposed to introduce them. Government cannot expect to effect so desirable a reform without considerable expense.

The distribution *gratis* of complete sets to all sellers who are not income tax payers, and at cost price to all who are income tax payers might be made, at least six months before the date on which the reform is to be brought into operation, and thus time will be given to all to make themselves acquainted with the new nomenclature and with its true local equivalents. Lastly, a future date should, once for all, be fixed and publicly notified, from and after which, the proposed Linear, Superficial, Weight and Capacity measures should be defined by Law to be the future

Standard Measures of British India. Their use thereon and after should be made compulsory in the Bazars at the Head Quarters of every Collectorate, of every Military Cantonment and at the chief (Cusbah) Town of every Talook. After five or ten years experience of this, and after due notice again and public notification, I would enforce the use of the Standard Measures in every town and village in the country.

I now come to the consideration of the late Indian Paper Currency Act. In dealing with the Act I do not intend to discuss abstractedly the merits of a Paper Currency versus a Metallic Currency. I shall, however, have to face the question, whether or no Bills of Exchange, Cheques on private Bankers, and similar drafts come under the denomination of Paper money, and as this and such like disputed points have been exhaustively discussed by well-known Economists,* I must refer to their Books those who wish to hear *in extenso* all that can be said on both sides.

Previous to March 1862, at the three Presidency Towns of India, Banks in which Government held shares, issued, on their own responsibility, notes to a limited amount. They had exercised this privilege, with more or less profit, for years back. Their notes, however, had little or no circulation beyond the walls of the Towns.

From 1840 to 1860, speaking in round numbers, the financial condition of India seems to have fallen into a chronic state of deficit. Year by year the country sank deeper and deeper into debt, in spite of the most rapid and marvellous development of Trade which it has been the lot of any country to experience. Twenty years, Mr. Laing tells us, had sufficed to add 30 million pounds Sterling to India's debt, and three years of mutiny brought the matter to a climax, and swelled the annual deficit to the enormous average of 12 million Sterling. It was in this disordered and desperate state of affairs, that the Home Government hit upon the fortunate expedient of sending out a Finance Minister to set their Indian House in order. Mr. Wilson, a well known writer upon the monetary questions was the first Minister, and it is to his labours in 1859-60 that India owes the establishment of a Government Paper Currency.

From this point, I find my friend *Indopolite*, in his Pamphlet on the Indian Paper Currency, has so directly traversed the route which I had sketched out for myself, that I shall help myself largely from his

* I refer to McCulloch, Mill, Tooke, Wilson, Locke, Harris, etc.

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narrative of facts, although I by no means concur in his suggestions and judgments. Mr. Wilson, *Indopolite* informs us, estimated the whole amount of coin current in India at 100 million pounds Sterling. The authorised note-issue of the three Banks of India was £5,000,000, of which one-fourth was to be issued against specie, and three-fourths against securities. Mr. Wilson proposed at once the withdrawal of the note-issue of these Presidency Banks and the division of India into Currency Circles, wherein Government Notes should circulate and be exchanged for coin on presentation. The lowest denomination of Note was to be 5 Rupees. To ensure perfect convertibility, the principle was advocated of issuing Notes to any amount so long as specie bearing a fixed proportion to that amount was held in reserve. Mr. Wilson proposed to issue one-third on specie, and two-thirds on securities.

Mr. Wilson's principle, however, was condemned by the Secretary of State for India, in his Financial Despatch of the 26th March 1860. The Secretary of State recommended the principle that is now in force in England, under the Bank Charter Act of 1844, namely, that a fixed maximum of Notes should be issued on security, and all above that maximum on specie. Mr. Wilson's principle has been called the *heterodox* principle, and the Secretary of State's the *orthodox* principle.

The two principles may be said to be the distinguishing pennants of the two Finance factions of the present day, and as Mr. Wilson was a distinguished leader of one faction, it was fortunate that the Secretary of State belonged to the other. Both principles set forth what, in the opinion of their respective advocates, is essential to secure the convertibility of the Note Currency. They differ, in that the *heterodox* principle is based on the idea that the establishment of a fixed maximum of Notes to be security is an unnecessary, not to say an injurious restriction; for that Notes convertible at pleasure never can be issued in excess. Mr. Tooke in his book on the *Bank Charter Act of 1844* lays particular stress of this impossibility of excess. Did any note, he triumphantly asks, convertible at pleasure ever sell for less than its value in Gold? Although Mr. Tooke is at great pains to fortify his position, there seems to me a weak point or two in his defences. Let me first ask, is it not possible that Notes may be issued in excess without passing from hand to hand for less than their nominal value in Gold? Are, at any time, all the Notes in circulation, or even a majority of them, really convertible at pleasure? Excepting the Notes in the hands of holders who live within a radius of five miles of the Bank doors, none are really so convertible.

It appears to me that, among the Notes out, there may be said to be every species of convertibility, ranging from convertibility at pleasure to inconvertibility. Between these extremes, in a time of prosperity and full, excessive issues of Notes may find their way into distant streams to supply the place of bullion leaving the country in an unfavourable rate of Exchange, and no one be the wiser until a sudden panic brings the whole building down.

However this may be, Sir Robert Peel gave practical effect to the *orthodox* principle, as regards the note circulation of England, when he passed the Bank Charter Act of 1844, and the act has been the battle-field of the two Finance Schools ever since. Mr. Tooke, Mr. Wilson, my friend *Indopolite*, and many other able men have strongly contested on the side of *heterodoxy*. If, however, we look singly and simply to the best mode of securing the convertibility of the Note, and that is really the sole question which we have to deal with, I cannot see that the *heterodox* party have a leg to stand upon. To make a case at all, it seems to me, that the *heterodox* advocates have surrounded the question with fringes extraneous to it, which they have been pleased to call "the hopes, expectations, and anticipations" of the framers of the Act of 1844. These "hopes and expectations" they readily enough shew have not been realised. In the excitement of debate it is possible that both "framers and supporters" may have drawn too sanguine a picture of the collateral benefits of the Act; but it is idle to leave the high road for such wayside speculations. The one point to be got at is, what was the aim and object of the Act of 1844? Was it not to confer a separate and special security upon the Bank Note, so as to ensure its equality with gold at all times? If such was the object, the question we have to deal with is, does the *orthodox* principle ensure a more certain degree of convertibility than the *heterodox* principle, or does it not? I cannot conceive any one replying otherwise than in the affirmative. Take a case; the maximum amount of Notes which can be issued on security in England is £14,000,000, and in India £4,000,000. These amounts represent the lowest points to which the Note circulation can fall under any mere commercial vicissitudes consistent with the maintenance of Government. These maxima may be called the Zero points, below which, so long as Government lasts, inconvertibility is out of the question. Above Zero, on the other hand, the higher the figure to which the Note circulation rises, the greater the proportion of protecting agency required.

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commercial panic may be likened to the action of a wave. The further the wave advances from the point where the initiatory impulse is given to it, the larger it becomes, and the swifter it flows, so that where it would successfully resist the wave at its commencement, it would not check it, when it had grown three times its original size. Suppose the note circulation of England to be £30,000,000. Under *orthodox* management, £14,000,000 would be issued on securities and 16,000,000 on specie. Under *heterodox* management, £20,000,000 would be issued on securities and £10,000,000 on specie. Can there be any doubt, under which system the convertibility of the notes would be best secured? It is admitted, however, by some of the *heterodox* party, that the convertibility of the note may be somewhat more secure under the *orthodox* principle; but they maintain that the increased security is attended with mischievous effects, which more than counterbalance its advantages. They refer to the grand principle of freedom of industry, and they say, that Bank Notes need no more protection than other forms of credit, such as Bills of Exchange, Cheques on private Bankers and the like, Freedom of industry is no doubt, as a rule, very desirable. It is certainly undesirable that Government should unnecessarily step in and place restrictions upon trade. But such a rule cannot be absolute. A hundred examples might be cited, wherein it is not only expedient, but positively essential, that Government should impose restrictions. The *salus publica*, as McCulloch fairly says, is the first consideration. If particular industries or acts seem likely to be, or plainly are, injurious to the public, whether they be the manufacture of gunpowder, the coinage of money, the manufacture and issue of notes, furious driving or thieving, whatever they be, Governments are bound to regulate or suppress them. Bank notes, when made legal tender, are no more like Bills of Exchange and private Cheques than Rupees are like Mint certificates. The former pass from hand to hand, without a suspicion or even a thought, in every stratum of society. The latter have no circulation at all, excepting with a few of the Upper Ten, and only with them after due reflection and consideration. Note money seems to me to need as much special protection as metal money.

The orthodox mode of note issue plainly approves itself to me, and I am not shaken in my opinion by Sir Bartle Frere's fears that "in the course of years there will be great temptation to raise the limit which may be issued on securities." The same objection may be taken to the *heterodox* principle and indeed to every principle. Who knows but future *heterodox*

Governments may think the proportion of $\frac{1}{2}$ specie too large, and enact a fresh proportion of $\frac{1}{2}$ specie to $\frac{1}{2}$ securities. It is idle to speculate upon the lack of judgment and honesty which may make posterity notorious.

Mr. Wilson's currency scheme, as I have already mentioned, was disallowed by the Secretary of State and certain amendments proposed. Before however a Bill could be carried through the Legislative Council of Calcutta, Mr. Wilson died and Mr. Laing, an *orthodox* Minister, reigned in his stead.

Mr. Laing fixed the maximum issue on securities at £4,000,000, and the lowest denomination of Note at 10 Rupees. He also discarded the idea of Currency Circles under Government agency, which Mr. Wilson had advocated, and he entrusted the management of the issues to the three Presidency Banks.

He also, as Sir Charles Wood pointed out, were committed two great mistakes. Raising the lowest denomination of Note from 5 to 10 Rupees was one, and leaving the issue of the Notes in the hands of Banks as follows:—

"Unless Notes are issued for sums small enough to be used in making payments in the ordinary transactions, the silver coin will not be displaced, except for the small number of payments of higher amounts, and the benefit of the introduction of a paper currency will be rendered comparatively trifling."

On the second mistake, quoting the Bank of England and shewing that it was essential, to ensure adherence to the *orthodox* principle, that the issue should not be left in the hands of a Bank, he remarked:—

"Twice since 1844 the demands on the Discount Branch of the Banking Department (of the Bank of England) have been such, that the Government have been driven to authorise the Bank to depart from the recognised principle of issue, to infringe the legal restriction and to issue Notes beyond the amount which the Specie in the Issue Department warranted. Such a demand could not have been made on a Department of Government merely exchanging Notes for Specie and Specie for Notes."

Mr. Laing, nevertheless, carried his Bill through Council, and arrangement was made with the Presidency Banks to bring the Act into operation on the 12th March 1862.

The consequence has been, as *Indopolite* states:—

"A vast amount of energy and thought, numberless despatches, minutes and consultations, eventuating in the suppression of a very good Bank-note currency and the substitution of a very indifferent Government note currency, not much greater in amount; and further, a considerable degree of confusion

question of weights, the expedient suggested by the committee appears never to have struck any one before. I would that one of the standard coins of the country were of weight,—and there is great advantage to be

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rising from the change, and a responsibility devolving upon the Government without any corresponding advantage. The authorised issue of the Presidency banks, before the present measure was introduced, was five crores of Rupees, and their actual issue perhaps a crore less than this. The actual circulation of Government Notes on the 31st August 1863, was five crores and sixteen lacs. Could not this trifling gain have been secured, and all this energetic statesmanship and ruthless innovation saved, by simply extending the issue of the Presidency banks? What possible object has been gained by saddling Government with the trouble and responsibility of a paper currency such as that which at present circulates? All the confusion, irritation, and loss, incident to a thorough remodelling of our currency has been incurred, without a single compensating benefit having been gained."

There is much truth in *Indopolite's* conclusions, and the Government of India seem at last alive to the fact that the success of the Currency Act has not been what the public had a right to expect.

There were, no doubt, serious difficulties in the way of establishing Currency Circles throughout India. They would have necessitated a large increase to the already largely swollen cash balances in the several Treasuries. This was indeed the main difficulty.

Sir Charles Trevelyan in his Financial statement for 1864-65 has given the cash balances in the 211 treasuries of India for the 4 years from 1860 to 1864. The average balance runs between 14 and 18 million sterling; a prodigious sum when we consider that the total annual expenditure of India is not 45 millions.

In England the working cash balance is but 8 per cent of the expenditure. In India it is 36 per cent. If then the payment of troops and ordinary current charges required a balance of such magnitude, it might well puzzle Mr. Laing to provide for Currency Circles, in the Treasuries of which large reserves of Specie would have to be maintained to protect his Note issues.

I am glad to find, however, that the difficulty has been got over, and that in Madras we are at once to have three Circles in addition to the Presidency Circles.

* This includes the Notes held as reserves by the three Presidency Banks. As 2 per cent is paid to the Banks on all Notes for which the Bank has given bullion or coin it is obviously to the interest of the Banks to hold all their reserves in Notes

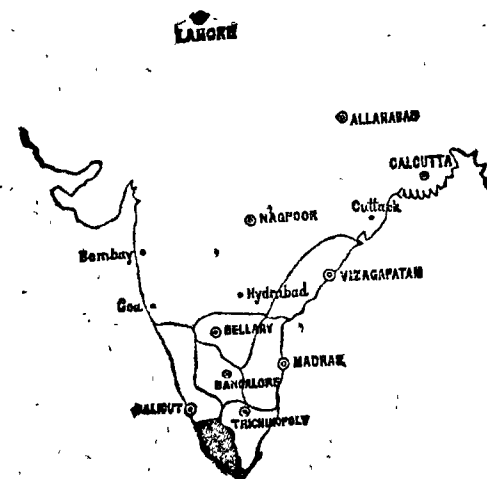
The districts which the four Circles will severally embrace, will be as follows:—

CALICUT CIRCLE embracing districts.	Malabar. South Canara. Coimbatore.	VIZAGAPATAM CIRCLE embracing districts.	Ganjam. Vizagapatam. Godavery. Kistna.
TRICHINOPOLY CIRCLE embracing districts.	Tanjore. Trichinopoly. Madura. Tinnevely.	PRESIDENCY CIRCLE embracing districts.	Nellore. Madras. North Arcot. South Arcot. Salem. Cuddapah. Bellary. Kurnool.

That this is a step in the right direction cannot be questioned, and were Mysore made a fifth circle and called the BANGALORE CIRCLE, and Cuddapah, Bellary, and Kurnool formed into a sixth and called the BELLARY CIRCLE, the measure would be an acceptable one to the inhabitants of those Districts, and would leave little to be desired in the way of affording the people of Southern India every convenience in the shape of a circulation of notes.

Similar Currency circles have been recently established at Allahabad, Lahore and Nagpore.

I append a sketch map shewing Currency circles of the Madras Presidency as they might be, and their relative situation to Madras and to each other.



us that, in the whole of the discussions that have question of weights, the expedient suggested by the ttee appears never to have struck any one before. wed that one of the standard coins of the country it of weight,—and there is great advantage to be

Each Currency circle should have its own note, which should be legal tender within its circle only. The notes of each circle will of course be convertible on presentation at the Treasury of issue in each circle, and the notes of all the circles will be in like manner convertible at the Head Office in Madras. In addition however to this, considering the central position that the Bangalore circle would occupy, and that a Railway now connects Bangalore with Madras, I can conceive no reason why notes of the adjoining currency circles of Bellary, Calicut and Trichinopoly, should not be made convertible at Bangalore, and *vice versa* the Bangalore Circle Notes made convertible at the circle Treasuries of Bellary, Calicut and Trichinopoly. An arrangement of this kind would greatly facilitate the transactions of Export merchants, and be no little convenience to Travellers.

Moreover, to foster confidence in the note, the recent order of the Madras Government allowing each office in charge of a District Treasury to cash the Notes of his Circle to the extent to which, in his opinion, Notes are re-issuable from his Treasury, might with advantage remain in force for a few years. I have not alluded to the lowest denomination of Note, as I am informed the Government of India have it in contemplation to adopt Mr. Wilson's original suggestion and issue Five Rupee Notes.

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From R. SIMSON, Esq., Secretary to the Government of the North-Western Provinces, to E. C. BAYLEY, Esq., Secretary to the Government of India, in the Home Department, Fort William, —No. 3380A, dated Nynce Tal, the 27th October 1864.

With reference to Mr. Officiating Under-Secretary Howell's endorsement No. 3838, dated the 20th June last, with which was forwarded Extract from the Proceedings of the Government of India, in the Home Department, with the copy of a Resolution recorded by the Governor General in Council, regarding the introduction of one uniform system of weights and measures for British India, I am directed to forward, for submission to His Excellency the Viceroy in Council, the accompanying Report, dated 1st ultimo, with enclosures, from Mr. R. Money, Captain F. W. Peile, and Mr. Middleton, who were requested to form themselves into a Committee for these Provinces to consider and report on the scheme, and to communicate the following remarks of His Honor the Lieutenant Governor on the subject.

2. As regards linear measure, there appears to be little practical difficulty. His Honor is of opinion that the *foot* will be the best and most convenient unit; its sub-division may for the present be left undetermined. The Lieutenant Governor agrees with the Committee that it is desirable to retain the Hindoostani *hath*, definitely fixing its length at $\frac{1}{2}$ a yard; the yard measure being also retained.

3. The superficial measure is a more difficult question from the enormous number of variations which occur all over India. Mr. Money says that little violence would be done to the prejudices of the agriculturists if a kucha beegah, equal exactly to one-fifth of an acre, or 968 square yards, were declared to be the standard for the North-Western Provinces. This is no doubt quite correct, but after all, great as the improvement would be, it would apply only to a fraction of India. It might, however, be carried into effect for local convenience.

4. The Lieutenant Governor would advocate the English acre as the standard, using its decimal sub-divisions in all public records. For the rest, no interference, at present at least, should be exercised with local measures beyond the determination of the size of the North-Western Provinces kucha beegah.

5. In fixing the *weight standard*, His Honor thinks Mr. Bayley has failed; his standard, 77.75 tola to a seer, is a very awkward one, and besides the weak point, which he himself notices, there is the objection, which he seems to have treated too lightly, that though his seer would be 5 grains short of 2lbs. Avoirdupois, yet he would define the seer legally as equivalent to two Avoirdupois pounds, and declare that a seer of 77.75 tola to weight would not be condemned as short.

6. It is curious that, in the whole of the discussions that have taken place on the question of weights, the expedient suggested by the Allahabad Committee appears never to have struck any one before. It is generally allowed that one of the standard coins of the country should give the unit of weight,—and there is great advantage to be

gained by having some easy means of referring the Indian to the English weights,—but with the Rupee as the unit this is impracticable, as the system is founded on *Troy* and not on Avoirdupois weights, and the former is practically unknown in commerce. In this system the maund is taken as equal to 82 and 2/7ths lbs Avoirdupois, a most inconvenient measure. The suggestion of the majority of the Allahabad Committee seems to meet all difficulties, and the only thing necessary to make it perfect is the coinage of quarter pice, a measure which has been often recommended, and which, in His Honor's opinion, is very necessary on other grounds.

7. Mr. Middleton well describes the difficulties attendant on any attempt to introduce an uniform system of weights, but in advocating the adoption of the Calcutta maund, the Lieutenant Governor thinks, he overlooks the fact that that would involve as great a change in some parts of the country, as the adoption of a maund of 50 seers each of 2 lbs Avoirdupois, while it would have serious defects, which the latter would not possess.

8. His Honor would therefore make the standard a 2 lbs Avoirdupois seer of 140 pice, taking care simply to avoid any violent and compulsory enforcement of it in parts of the country which are not yet prepared for the change; but this change cannot be introduced without the 1/4 pice coin.

9. As regards the measure of capacity, His Honor does not think that any better proposal can be made than that of Mr. Bayley.

10. As to the mode of introducing these reforms, the remarks and suggestions contained in paragraphs 61—79 of Mr. Bayley's paper are very good; the Lieutenant Governor thinks that a year's notice should be given, or as much longer as may be necessary to enable the Mints to prepare standard measures, and after the expiry of the time named, the change should be made compulsory in all Military Cantonments, and all towns to which the Municipal Act has been, or may hereafter be extended. Further than this, His Honor does not think that any compulsory measures should be adopted, but all Government transactions should be in terms of the new system.

From R. MONEY, Esq., Junior Member of the Sudder Board of Revenue, North-Western Provinces, Captain F. W. PEILE, Superintending Engineer, 2nd Circle, and J. R. MIDDLETON, Esq., Merchant, Allahabad, to R. SIMSON, Esq., Secretary to the Government of the North-Western Provinces,—dated Allahabad, the 1st September 1864.

We have the honor to acknowledge the receipt of the orders of Government No. 2176 A, dated 21st July last, with copy of a Resolution by the Right Hon'ble the Governor General of India in Council, No. 3838, dated 20th June, and a selection of printed papers connected with a proposed reform of the system of weights and measures at present in use in British India, and desiring us to form ourselves into a Committee for these Provinces to consider and report on the scheme.

2. We beg to state in reply, for his Honor's information that we have given the subject our careful consideration, of which the result

is contained in the following remarks. These will refer to memorandum drawn up by Messrs. Money and Middleton, of which copies are annexed.

3. Considering the divisions of the subject in the order in which they have been treated by Mr. Bayley, we concur unanimously in the proposal that the English yard and foot should be adopted as the standard of linear measure. The two modes of sub-division, namely, into feet, and either inches or decimals of a foot, and into sixteenths of a yard, should be maintained. The yard divided into sixteenths would be used for the measurement of textile fabrics, and generally of all articles now usually sold by the yard.

4. The foot measure will continue to be used in architectural operations, and Captain Peile suggests that its division should remain an open question pending the decision of the British Legislature on the subject. If the decimal sub-division should be adopted in England, the same system might, with great advantage, be established in this country. Captain Peile states that it is now used by Captain Limond, who is superintending the erection of the public buildings at Allahabad, and very much facilitates all computations of measurement, whether linear, superficial, or solid. Messrs. Money and Middleton concur in the recommendation.

5. For land measure we unanimously recommend the acre standard, sub-divided into beegahs for interior village or field measurements in the North-Western Provinces and Bengal, as proposed in Mr. Money's memorandum.

6. In regard to the standard of weights we are not unanimous. Mr. Middleton adheres to the proposal contained in his memorandum that the unit should be a seer of Rs. 80. He is of opinion that there would be no advantage in assimilating the Indian to the English weights. He remarks that there is an enormous trade between England and almost all other countries, and although, with the exception only of the British colonies, there is no similarity between the weights of other countries and those of England, no inconvenience is experienced. He has been employed in mercantile dealings for many years, and never found any inconvenience to arise from the difference between the Indian and British weights. He considers the first object to be the convenience of the community at large, and therefore that the scale to be adopted should be the one, which would be most readily accepted by the natives of this country, and in that view he believes the seer of Rs. 80 to be the best. If, however, the Legislature should not see fit to make this seer the legal standard, he would concur in recommending the adoption of the seer of 2 lbs Avoirdupois.

7. Captain Peile concurs unreservedly with Mr. Money in recommending the adoption of a seer of 140 pice, equal exactly to 2 lbs Avoirdupois. The sub-divisions of the seer, down to 2 chittacks, could be obtained with the present copper coinage, and we are all of opinion that a quarter pice (weighing 25 grains) might be coined and made a legal tender with great advantage to the poorer classes of the community. The pice is divided into 2 dhas, 4 chidams, or 8 dumrees, and purchases of salt, pepper, tobacco, and some other articles are constantly made to the extent of only one dumree, while the equivalent in cowries

of a chidam or quarter pice is in much more frequent demand. If there were a coinage of quarter pice, we should have the chittak equal to $8\frac{1}{2}$ pice, and the sub-division of the seer would be complete.

8. In regard to the measure of capacity, we are unanimously of opinion that no standard would be more appropriate than the seer equal to one imperial quart.

9. We would recommend that the standard weights should be used in all Government transactions so soon as the requisite number could be prepared and distributed; but Captain Peile urged the necessity of allowing some time to elapse before their use should be made compulsory even in Cantonments and large stations, in all of which there are many small native dealers who should be permitted to become gradually accustomed to the change of system. Messrs. Money and Middleton now agree in his opinion, and the Committee recommend that the use of the standard weights should be made compulsory in all the Presidency towns, Cantonments, and Civil stations after the lapse of one year from the date of the passing of the Act, and after the lapse of two years their use should be made compulsory throughout British India.

10. The printed papers which accompanied your letter are herewith returned.

NOTE on proposed reform of system of weights and measures.

In regard to linear measure, I concur entirely in the proposal of Mr. Bayley that the English yard and foot, which are very generally known and extensively used throughout India, should be adopted as the standard. The length of the Indian guz is variable, but generally it does not differ much from the English yard, which, in accordance with native usage, might be divided into sixteenths, or "girahs" of $2\frac{1}{2}$ inches.

The superficial measures for land vary so greatly in different parts of India, (the kucha beegha in the North-Western Provinces, ranging from about 800 to 1,300 square yards; the Bengal beegha of 1,600; the puckah beegha of the North-West from about 2,000 to 5,000; the Bombay beegha averaging about 2,900; and the Madras cowrie of 6,400 to the Vaylic of nearly 32,000) that no selection could be made from them of a standard from which the variations of the several measures now in use would not be as great as they are from the English acre. It may be confidently asserted that there is no one measure of land that is so extensively known by the people of India as the English acre, in which measurements have been made throughout the North-Western Provinces, and largely in the Presidencies of Madras and Bombay. I have therefore no hesitation in recommending the adoption of the acre of 4,840 square yards as the standard for land measure.

The decimal sub-division might be conveniently adopted for Government purposes; but I would not immediately impose on the agricultural community the unrestricted obligation to use the acre and its decimal sub-divisions in all their transactions. In the North-Western Provinces, of which I can speak from long experience, although areas

are officially recorded in "puckah beeghas," the "kucha" beegha is used almost invariably for the measurement of fields and the assessment of rents. This kucha beegha generally one-third of the beegha called puckah. The puckah beegha that is most extensively used in these Provinces contains 3,025 square yards, and the corresponding kucha beegha is 1,008. Little violence would be done to the prejudices of the agriculturists if a kucha beegha, equal exactly to one-fifth of an acre, or 968 square yards, were declared to be the standard for the North-Western Provinces. The measure might be introduced without much difficulty, and the way would thus be prepared for bringing its multiple, the acre, into general use. For the present, at all events, I would allow the native sub-divisions of biswals and biswansees to be retained. The conversion of beegha measurements into acres and decimals would be very simple. The biswals or biswals and biswansees can be converted into decimals at sight, and either multiplication by 2, and removal of the decimal point, or division by 5 will give the acres.

e. g.	Beeghas	37	17
5) 37.85	or	37.85	2
		7.57	7.570

In Bengal if the standard beegha were made one-third of an acre or 1,613 $\frac{1}{2}$ square yards, it would differ very slightly from the measure now generally used in that Province.

As a standard for weights, the advantages which would attend the adoption of a seer equal to 2lbs. Avoirdupois are so obvious as to outweigh all the arguments that can be adduced in favor of any other measure. I demur only to Mr. Bayley's proposal that the weight should be nominally equivalent to $77\frac{1}{2}$ tolas, or 5 grains less than 2lbs. I admit the discrepancy to be so small that it would be practically inappreciable, but the initiation and perpetuation of even so small an error would at the least be very unsatisfactory, if not also, as it appears to me, both inexpedient and unnecessary. The weights of the current copper coins are prescribed by law with the same exactness as those of the silver coinage. By Acts XXI, 1835, XI, 1854 and XIII, 1862, the weight of the copper pice is fixed at 100 grains Troy; 140 pice are therefore exactly equal in weight to 2lbs. Avoirdupois, and I would declare the standard accordingly. The weight might also be declared to be $77\frac{1}{2}$ Rs. and $\frac{1}{2}$ masha (or 5 grains.) (See Section 4, Regulation VII, 1833).

By adopting the copper standard as the measure of the seer, the "weak point" adverted to in paragraph 36 of Mr. Bayley's memorandum would be eliminated, for we should have

$\frac{1}{2}$ seer	=	70	pice.
$\frac{1}{4}$ "	=	35	
$\frac{1}{8}$ "	=	17 $\frac{1}{2}$	

the weight of the $\frac{1}{2}$ pice being fixed at 50 grains by Acts XI, 1854 and XIII, 1862; and if a quarter pice were coined, we should have

the one-sixteenth seer, or chittack, equal to $8\frac{1}{2}$ pice. The seer should further be legally defined as equivalent to 2lbs. Avoirdupois, and there would be no necessity for the declaration "that a seer of 77 $\frac{1}{2}$ tolas weight would not be condemned as short."*

* Mr. Bayley's memorandum, paragraph 35.

As the maund of 50 seers will correspond exactly with the new English cwt. of lbs. 100, and 20 maunds equal the ton of 2000 lbs., the exact assimilation to English weights which would be effected by the use of that multiple of the seer renders its adoption in my opinion most desirable.

I can suggest no improvement on Mr. Bayley's proposed quart measure of capacity, which is so nearly equivalent to a seer weight of grain.

I would concur with the Madras Board of Revenue in advocating the gradual introduction of the system, making its use compulsory in the first instance in large Towns and Cantonments only.

The adoption of a Rupee weighing 175 grains, of which 80 would exactly equal the seer of 2lbs. Avoirdupois, would provide a most convenient unit of weight, and perfectly adapt the ponderary system to the silver coinage; but as the present intrinsic value of 165 grains pure silver must be retained and the touch would be thereby raised to 92 $\frac{1}{2}$, that measure would, I suppose, be regarded as impracticable.

(Signed)

R. MONEY,

Junior Member.

Allahabad, 29th August 1864.

Memorandum by J. R. MIDDLETON, ESQ.

The appointing of a uniform system of weights and measures for all India is a most gigantic undertaking. From my having purchased cotton and other articles at Bombay many years ago for the China market, and again from the extensive purchases that I have made in cotton during the last two seasons at this part of India, viz., at Rajapore and many villages in Bunderbund, at Etawah and villages near there, and at Allypore and villages near it, and also at Hattass and Kashgunje and the villages near those places—purchasing each season to nearly the extent of ten lakhs of Rupees worth—I consider that from my own personal experience I should be able to form an opinion on the above subject. In every mart in India that I have had business in—although in some cases they were only ten koss distant from each other—the maund weight differs, and not only does the difference exist in respect of one mart to another, but the weight of a maund by which each article is purchased at the same mart differs also; for instance, cotton, iron, linseed. Each are sold by a different maund. Each mart has in general either one or two market days per week, at which times the natives collect from far and near, from all different sorts of weights at once, would therefore cause much confusion. I would recommend to try and do it gradually, taking at first only two articles of general use—one of dry and one of liquid substance—

say cotton and oil including ghee,—as those articles are valuable and produced largely in the three Presidencies. In establishing a uniform weight, a standard easily procurable all over India should also be provided for the purpose of checking the weights. I would therefore recommend the Calcutta Bazar maund of the weight of 3,200 Rupees or Tollahs, or 82 lbs., as the maund to be used all over British India; and to be named the "Imperial maund," it could be divided into the same parts as it is at present, as such would save much confusion, viz :—

Seers.		Rs. or Tollahs.
40	One Imperial maund weighing 82lbs. or	3,200
20	Half of Adha ditto	1,600
10	Quarter or Pow ditto	800
5	Eight or Pussowrie ditto	400
1	One seer	80
1	Adha ditto	40
1	Pow ditto	20
1	Adha Pow	10
1	One chittack	5

Cotton at Bombay is generally sold by the candy of 300 lbs., but this differs in some places. I would recommend the candy to contain 5 Imperial maunds, or 410 lbs. weight, and the larger weights to be formed also of a certain number of Imperial maunds.

Liquids when sold wholesale, are sold by weight, but in retailing, they are generally sold by a seer or part of a seer measurement,—this measurement seer varies on two principles. One as to the weight of the maund that it is usually sold by, each mart having its own maund. The other is according to its specific gravity, one description of liquid being of more or less specific gravity than another, as there is no Imperial or general measure for liquids in India. I would not establish one, but in retail business where the measure of a seer is used, I would make that measure of each article coincide with the Imperial maund,—that is, make a seer measure of each liquid weigh 80 Rupees or Tollahs. I do not include spirituous liquors, as such is measured by strength, and is of course under its own peculiar laws.

There should be a small fine put on after a certain time,—say an anna per maund,—on parties using other weights or measures.

After the foregoing was put into practice for a couple of years, the result would form a guide as to the practicability of bringing all other articles of commerce under the same rules.

(Signed)

J. R. MIDDLETON.

Allahabad.

P. S.—In superficial or land measure I can only remark that if two beegahs were made equal to an acre, that is twelve hundred and eighty beegahs to a square mile, such would save the Surveyors much trouble. In lineal measure I have not any experience.

(Signed)

J. R. MIDDLETON.

* Messrs. P. Auschitzky & Co.
 " Burot Gerber & Co.
 " R. G. Ghose & Co.
 " Halliday Bulloch & Co.
 " J. O. Hay & Co.
 " Mohr Brothers & Co.
 " Niebuhr & Co.
 " T. Stewart & Co.
 " C. F. Weber & Co.
 Mahomed Bux Sowdaghur.
 Messrs. Adlard & Brown.
 " Woodward & Co.

The following Papers regarding the proposed introduction of standard weights and measures, are circulated for the information of the resident Merchants at Akyab.

I.
 No. 3830.

Extract from the Proceedings of the Right Hon'ble the Governor General of India in Council in the Home Department, under date 20th June 1864.

Read the following papers on the question of a uniform system of weights and measures for British India :—

Letters from the Government of Fort St George, No. 834, dated 13th May, and No. 2005, dated 7th November 1863, with enclosure.

Letters from the Secretary to the Calcutta Trades Association, dated 10th July, and 17th December 1863.

Letter to the Secretary to the Calcutta Trades Association, No. 8107, dated 30th December 1863.

RESOLUTION.

The Madras Government, in submitting for the consideration of the Government of India "The great importance of steps being taken for the reform of the various systems of weights and measures in use in British India," suggests the appointment of a Committee consisting of a properly qualified person from each Presidency to consider and report on the scheme which, as least disturbing the present scales and nomenclature, and bearing a single relation with the system observed in England, may seem most worthy of adoption for all India.

2. Similarly the Members of the Calcutta Trades Association request the appointment of a mixed Commission "to make full investigation into the system of weights and measures now prevailing in India, and to adjust the same to one Imperial Standard."

And they further suggest that the Standard thus obtained should be made obligatory by law "in every district and province of the Empire."

3. There can be no doubt, the Governor General in Council observed, that a uniform system of weights and measures for all India would be of great public advantage—It is equally obvious, however, that the difficulties in the way of attaining so useful an object are considerable.

There is much to be done before a practical scheme for general adoption can be discovered, and when discovered, it will, His Excellency anticipates, be better introduced by indirect means than by direct penalties of Law.

4. The mode of dealing with the question which most recommends itself to His Excellency in Council, is to have a separate Committee of well-selected persons for each Presidency and Province—each Committee should consist of 3 or 5 members, for preference 3, (say a Civil servant, a Merchant and an Engineer Officer)—who should meet together in the Chief city of the Presidency or Province, and deliberate on the subject, reporting the result of their labours to the Local Government or Administration; and the report should be forwarded with any remarks which the Local Authorities may deem necessary for the further consideration of the Government of India. Such Committees, His Excellency in Council believes, would, for the present at any rate, be more useful and far less expensive than a Central Committee for all India.

Ordered that a copy of this Resolution, together with a selection of former papers on the subject from the Home Office Records, be forwarded to the Governments of Fort St. George, Bombay, Bengal, and the N. W. Provinces for information and guidance, and to the Foreign Department for communication to the Government of the Punjab and the minor Administrations.

Ordered also that a copy of this Resolution be forwarded to the Calcutta Trades Association for information.

(True Extract)

(Signed) ARTHUR HOWELL,
 Offg. Under Secy. to the Govt. of India.

No. 611.

Copy forwarded to the Chief Commissioner of British Burmah for information and guidance.

FOREIGN DEPT., GENL., } (Sd.) C. U. AITCHISON,
 Simla, 7th July 1864. } Under Secy. to the Govt. of India.

II.

*Minute on the subject of weights and measures for British Burmah,—
 Rangoon, August 15th, 1864.*

Last year the subject of weights and measures for British Burmah was fully discussed at each of the principal ports in British Burmah. I believe that all parties agreed as to the necessity of having a fixed standard for grain measure—the only difficulty which existed was that of procuring a legislative enactment making the observance or use of a given standard weight or measure compulsory under penalties upon the population at large.

Since then, the question of weights and measures throughout the whole of British India has been brought before Government, and it is necessary that there should now be a declaration of opinion by those most interested and those most likely to know the wants of the country as to what is required on this important subject for British Burmah.

The Chief Commissioner considers this object can be best attained by Committees sitting at the principal towns, namely—at Rangoon, at Moulmein, and at Akyab.

The questions which will be of primary importance to discuss, the Chief Commissioner ventures to observe, will be as follows:—

In regard to the position of British Burmah and the system of weights and measures already existing, and those existing in the adjoining countries, will it be advantageous to establish the Maund and Seer of India, that is, the seer of eighty tolahs of which the rupee is the basis, or to adhere to the method of sale of grain as at present existing throughout the province by the measure called the basket or bushel?

It is well known that, from there being no positive standard basket in British Burmah for wholesale transactions, the capacity of those in use varies considerably, but the royal basket of Ava comes very near to the Imperial standard Bushel of England (believed to contain 2218.19 cubic inches) and can be adopted without difficulty throughout British Burmah. In bazars for daily retail sale this basket is the existing legal measure throughout Pegu. Is it recommended that this basket shall be universally adopted?

In Arakan a half bushel would come very near to the capacity of the basket now used at Akyab.

Further south in that division the same basket exists as elsewhere in British Burmah.

The divisions of the English bushel correspond exactly with those of the Burmese basket, so that there really would be no change except that of having one general standard basket instead of a variety of sizes.

It will be proper to consider whether at first the standard basket should be made compulsory only at the sea-port towns or at such places only to which the Chief Commissioner may be empowered under an Act of the legislature to extend it.

It is desirable to consider whether by law it shall be obligatory to sell paddy, rice, and *all grain*, by measure or by weight.

With regard to weights the first question will be, should we adopt the Indian seer of 80 tolahs, and the Indian weights similarly, or retain the existing Burmese weights for all transactions.

The basis of the Burmese weights is the tickal which contains 252 grains troy. One hundred tickals equal one viss—(365lbs avoirdupois) and is exactly equivalent to 140 tola weight of India. These weights are universally used in every little village throughout the country and in the Burmese territory.

Do we require to notice how English weights should be received or used either at the sea-port towns or otherwise? On this point an opinion should be recorded.

Should the basket measure and the tickal or viss be made legal standard weights and measures, what is recommended in order that trustworthy standards for use may be sold or distributed throughout the whole country to the people?

What period of notice should be given in order that people may know the law is to come in force?

The Chief Commissioner has in this Minute endeavoured to bring to notice the principal points which will have to be considered by the Committees, and he begs that they will have the goodness to favour him with their opinions on these points, and on any others which may occur to them in connexion with this important subject.

(Signed) A. P. PHAYRE,

Chief Commissioner, British Burmah.

III.

In accordance with the above a Meeting of the Mercantile Community at Akyab was convened, and the following Committee appointed to draw up the Report for Akyab:—

1 Civil Servant, MR. C. J. BROWN, *Collector of Customs.*

1 Merchant, MR. E. CHRESTIEN, *Resident Partner in the firm of Burot Gerber & Co.*

1 Engineer Officer, MAJOR J. F. TENNANT, R. E., *Executive Engineer.*

IV.

Report of a Committee appointed by Major R. D. Ardagh, Commissioner of Arakan, under instructions from the Chief Commissioner, British Burmah,—Akyab, September 12th, 1864.

The Committee recommend that the standard of Dry measure be the English Bushel containing 2218.192 cubic inches or 8 Imperial gallons. The Basket of Arakan would be the half Bushel and that of Pegu the Bushel—The Committee would suggest that the Legislature should deal only with the "Bushel"—The Local term "Basket" would be applied then in the one case to the Bushel and in the other to the Half Bushel.—The mean of a considerable number of local Baskets in Arakan has been found to be 1062.5 cubic inches which is so close to the half Bushel that the Local Trade would not be disturbed.

The Committee deprecate any Legislation as to whether grain shall be sold by weight or by measure.

As regards weight—The Committee are of opinion that the Indian Maund and seer; whose sub-divisions are founded on the weight of the standard coin, and readily verifiable by reference to that coin, offer great advantages.—These denominations of weight are well known in the Arakan Ports, being constantly used.

The Burmese tickal is probably liable to change, and consequently the Viss dependent on it; and the Committee think that as far as the wants of this Province (Arakan) are concerned, and probably as regards British Burmah generally, there would be no advantage in a standard of weight differing from that of British India.—They are disposed to think that no greater inconvenience would arise in transactions between parties on different sides of the frontier from the Indian standard being in use in the British provinces than from a standard Viss, as long as the weights of Burmah are in any way uncertain.

As regards the supply of standard weights and measures, the Committee are of opinion that it is impossible to make them for the whole country by Government Agency.—They recommend that certain Government Officers, the more numerous the better, should be authorized to verify and authenticate any weights or measures brought to them for that purpose on payment of fees.

If any Liquid Measure is introduced into India, the Committee consider that it should be the Imperial measure in all respects; and they would recommend that the English *yard* and *foot* be enforced.

The Committee think that the use of standard weights and measures should be rendered compulsory within one year after the passing of the Act, in all Seaports, Sudder Towns of Districts, Cantonnments, and in such other towns as may be appointed by the Chief Civil authority, who should have power to name a later period at which their use should be enforced in all Bazaars and Shops in his jurisdiction.

In all contracts the weights and measures should be understood to be standard weights and measures, and should be so construed by the Courts;—all contracts specifying other units to be rejected.

The Committee would willingly have avoided any compulsory clauses, but it has become evident that without some there will be no change, and that the Measure as well as the price will be a subject of discussion, thus introducing a most undesirable element into bargains.—It is hoped that the gradual introduction of the system provided for above will prevent any material inconvenience from the change.

As regards English weights, the Committee believe they are little used as such, except in transactions of Europeans with each other, and that the reasons for prohibiting the use of all other weights apply with equal force to these.

(Signed) J. F. TENNANT, Major, R. E.
(Signed) C. J. BROWN.
(Signed) E. CHRESTIEN.

(True Copies)

R. D. ARDAGH,
Officiating Commissioner of Arakan.

From Colonel A. FITCHE, Commissioner of the Tenasserim Division of British Burmah, to Major H. NELSON DAVIES, Secretary to the Chief Commissioner of British Burmah, and Agent to the Governor General, Rangoon, —No. 486, dated Moulmein, the 13th September 1864.

With reference to your letter No. 02700, dated 15th ultimo, I have the honor to enclose herewith the Proceedings of the Committee held here on weights and measures.

2. I concur fully in the whole of the suggestions made by the Committee, and consider that there would be no difficulty in establishing the English bushel, with the sub-divisions of the Burmese basket; viz., 16 byees, both for wholesale and retail transactions throughout the country. I consider that the introduction of any Indian weight or measure, such as the maund and seer weight, would be most unadvisable.

3. The Burmese viss of 365 lbs. avoirdupois, with its different sub-divisions, should be retained for country produce, and when the parties agree to it, English weights could be used in the purchase and sale of European commodities, such being the custom at present.

4. The Notice proposed to be issued for the introduction of the Bushel measure, as also the form and the manner these measures should be provided, appear to be very proper.

5. The documents which accompanied your letter under reply are returned herewith.

Report of the Committee assembled at the Office of the Deputy Commissioner on 29th August 1864, to take into consideration the Regulation of the Weights and Measures for British Burmah.

PRESENT:

COLONEL D. BROWN, Deputy Commissioner.
T. J. FALLOW, Esq., Town Magistrate.
ROBERT HANNAY, Esq., Honorary Magistrate.
D. McDONALD, Esq.
J. H. MILLER, Esq.

Read letter (No. 163 of 1864), from the Commissioner, Tenasserim Division, and the various documents accompanying the same, relating to the Regulation of the Weights and Measures for British Burmah, having been fully considered, we beg to submit the following opinions and remarks thereon.

The absence of a fixed Standard of Weights and Measures in Burmah is felt as a great inconvenience to trade, and it would benefit all classes to have the weights and measures of the country regulated by law.

The Standards of Weights and Lineal Measure appear to have been settled by Law or Custom, and have been long in use. The practical unit of weight being the viss of 3.65 lbs. Avoirdupois, and that of Lineal measure the cubit of 18 inches and the foot, the former is used in measuring cloths, &c., and the latter for Timber, and both are well understood, and found convenient by the whole community, and

can be readily verified by their English equivalents. In fact, English weights and Foot Rules are largely used in practice, being easily convertible into the Burmese denominations of viss and cubit, and we would not recommend these being disturbed.

The measures for capacity both for liquids and dry commodities are in a very unsatisfactory state, and require to be regulated by authority. The "Old English Gallon" is still partially in use in the bazars and shops; we would recommend its being abolished, and the Imperial gallon used in its stead.

The "dry measure" of capacity, the "basket", is the most uncertain of all, while it is of the utmost importance to have it correct; for, besides being used in the purchase of the daily food of the people, it is essential to fair commercial dealings in some of the principal exports of the country. We believe that no recognized standard of "dry measure" exists, certainly none is in use, and the greatest conceivable variety exist in what is denominated the "Burman basket" ranging from 62 lbs. up to 78 lbs. of rice in measures in actual use in the export trade, and it need hardly be noticed that the smallest size is that used by Europeans in their purchases. We therefore think it most desirable that a "dry measure" of capacity should be established by law.

The next question for consideration is the capacity of the required standard for "dry measure"; but in this we are not able to gain any definite information either from the papers before us, or from inquiries made of those most likely to assist us; nearly all recommend the Burman Basket in preference to the English Bushel, but none appear to know what is the actual capacity of the Burman or Ava Basket. It does not help us to a solution of the question to say that it contains 16 or 18 Tabees or Viss, for the Viss being the only certain guide in this definition; we are not told what commodity or substance is used for the test; a Viss of one thing may be double the bulk of another. The only approximation to the actual cubic contents of the Basket of Ava that we have been able to gather is contained in the Minute of the Chief Commissioner, where, after stating that there is no positive Standard Basket in British Burmah, he goes on to say that the Royal Basket of Ava comes very near to the Imperial Standard Bushel of England. In McCulloch's Commercial Dictionary (Article Rangoon), it is stated that a Basket of clean table rice purchased for the experiment in Moulmein weighed 59½ lbs. while an English Bushel of the same rice weighed 63½ lbs., and this we believe is all that will ever be known of it, for it may be fairly questioned, if the Burmese have either the means or the skill to construct either a standard measure of capacity or a scale beam that would be found rigorously exact.

It thence follows that the various Baskets now in use have no common basis, but are purely arbitrary measures made to suit individual interests. We would therefore recommend a Basket for British Burmah to be made and fixed by Law, and as the English Bushel if found to be very nearly the same with the Basket in use in Burmah Proper, and the sub-divisions of both being alike, we see no objections to making that the standard for British Burmah, retaining the native denominations of Basket and its sub-divisions. Regarding the intro-

duction of Indian weights and measures into British Burmah, we do not think such a change would be acceptable to any class of the community; they might be used by Indian Traders at the sea-ports in dealing with their own countrymen; but Europeans do not require them, and to the Burmese in the interior and the natives of the neighbouring States, they would be wholly useless. The Burmese rarely adopt many European improvements, but have little respect for Indian customs which they consider are inferior to their own. We would therefore recommend that, in the sale of grain, the Measure be retained instead of introducing the sale by weight, and that the standard Basket be made compulsory throughout the country, both for wholesale and retail.

The use of English weights has already become common both for the purchase and sale of certain English commodities where the English denominations of cwt., qrs., and lbs. are retained, and also for large transactions in native produce which are usually weighed by English weights and converted into Burmese denominations, in making up accounts. This practice prevails very generally throughout British India, and should not be interfered with in Burmah. This will render it necessary to keep a standard test weight for English as well as Country weights.

If six months' notice be given for the introduction of the standard Basket, we think it would be sufficient time for the people to prepare for the new measures, and to complete or adjust existing engagements to the change. Tenders might be invited for a certain number to be made for Government to be supplied to the public at cost price, but parties should be allowed to make their own measures by adhering to the capacity and form of the standard, and having them stamped after being verified. The distribution in the districts might be made through the local Officers who would indent on the chief authority for any number likely to be required, and it is probable that the agriculturists would register their requirements through their native head-men on notice of the change being given.

We have only further to remark that, in constructing measures of capacity for grain, the form of the vessel should not be overlooked. We would recommend a cylinder as the best form, as all angular and irregular shaped vessels, although corresponding with each other in the measurement of fluids, will vary considerably if applied to grain or other dry commodities.

Note by D. McDonald.

I am of opinion that all measures should be made by Government only, and none by private individuals.

MOULMEIN,
7th September 1864. }

(Signed) J. H. MILLER,
Honorary Secretary.

Proceedings of a Committee assembled at Rangoon by order of Lieutenant Colonel Phayre, C. B., Chief Commissioner of British Burmah, to discuss the subject of a uniform system of weights and measures for British India.

Present :

MAJOR FAITHFUL, *President.*

Members.

G. BULLOCH, ESQ.
BLACK, ESQ.
E. FOWLE, ESQ.

R. S. EDWARDS, ESQ.
CAPTAIN E. D. SLADEN.

The Committee appoint Captain Sladen to be Honorary Secretary to record Proceedings and draw up final report.

Read Minute of the Chief Commissioner, dated Rangoon, 15th August 1864, together with Resolution of the Government of India, No. 3839, of 20th June 1864.

The Committee determine to discuss and report separately on each subject in the order laid down in the Chief Commissioner's minute, and at the conclusion of their sitting, to draw up a general Report embodying the several objects and reasons upon which their final decision on each point has been based.

1st Question for discussion.—Whether, with reference to the position of British Burmah in its connection with other countries, it will be advantageous to establish the maund and seer of India?

Ans.—The Committee are of unanimous opinion that the maund and seer cannot be established with any advantage in British Burmah.—*Vide Report.*

2nd Question.—Shall the Royal Basket of Ava be universally adopted?

Ans.—No; the Committee are of opinion that there should be one uniform measure of capacity, and recommend that the English Bushel, which approaches so near to the Royal Basket as to exhibit almost an unappreciable difference, should be universally adopted in British Burmah, and be styled the standard Basket of British Burmah.

3rd Question.—Is it desirable to sell all grain by measure or by weight, and shall such sale by one or the other be made obligatory?

Ans.—The Committee are of opinion that, having established one universal standard weight and measure, it would be generally advantageous to allow traders to purchase or sell by such standard weight or measures as most convenient to each particular case.

4th Question.—Is it desirable that, the standard Basket be made compulsory as the standard measure of capacity in the large seaport towns only, or throughout the whole of British Burmah?

Ans.—Compulsory throughout British Burmah.

5th Question.—Should we adopt the Indian Seer of 80 Tolahs, or retain the existing Burmese weights for all transactions?

Ans.—The Committee think that the existing Burmese Viss of 100 Tickals, 100 Viss being equal to 365 lbs. Avoirdupois, should be held to be and retained as the standard weight for British Burmah, and universally adopted. They are of opinion that the English standard weight must be recognized in all seaport towns or elsewhere throughout British Burmah as a basis of account, and used optionally to suit the convenience of parties.

6th Question.—What is recommended in order that trustworthy standards be sold or distributed throughout the whole country to the people, provided the Tickal and Basket measure are made legal standards?

Ans.—The Committee recommend that a sufficient number of weights and measures be ordered to be made (the measures of sheet iron) for distribution throughout the country. They think that one or more sets of each standard weight or measure, should be kept for inspection by the head native Official of every town and village. They suggest that at least six months' notice should be given of any anticipated change, and that on no account should such change be introduced excepting between 1st June and 1st November of any particular year.

The Committee having generally replied to the questions which have been put to them, think it advisable that a report upon the subject before them be drawn up as a means whereby their opinions may be more clearly expressed.

(Signed) EDWARD B. SLADEN,
Honorary Secretary.

(Signed) G. FAITHFULL,
Deputy Commissioner.

(Signed) R. S. EDWARDS,
Collector of Customs.

From the Rangoon Local Committee, appointed to enquire into the subject of weights and measures for British India, to MAJOR H. NELSON DAVIES, Secretary to the Chief Commissioner and Agent to the Governor General.

With reference to your letter No. 02699 of the 15th instant, we have the honor herewith to report the result of our enquiry upon the subject of a uniform system of weights and measures for British India.

** President.*
Major G. Faithfull.

Members.
G. Bulloch, Esq.
J. Black, Esq.
E. Fowle, Esq.
R. S. Edwards, Esq.
Captain E. B. Sladen.

2. Before entering upon the more immediate subject of our Report, we are desirous of accounting, in some measure, for the apparently short space of time given to our deliberations, as com-

pared with the magnitude and importance of the subject which has been submitted for opinion.

3. In venturing an explanation, we may first be allowed to mention that our Committee comprises amongst its members the Deputy Commissioner of the Rangoon District, the Collector of Customs of Rangoon, two of the leading merchants of British Burmah, a resident gentleman of Rangoon, who is acknowledged to possess a very extensive and varied experience in all matters appertaining to the peculiarities of Burmah and its people, and the Rangoon Town Magistrate.

4. One very natural, and at the same time noticeable, feature in the proceedings of a Committee thus formed is that there has resulted an almost unanimous decision on the several questions brought under notice. Argument has not been wanting; but that very argument has been connected with subjects which, for many years past, could not fail to have received the attention of our Committee, whose interests are especially identified with those of British Burmah. We have found in a most remarkable degree that our preconceived knowledge and opinions only tended to make us arrive at a unanimous finding and resolution on the various questions involved in the subject of our enquiry. This must account for the fact that our Committee has held but one general sitting; and though we have been consciously impressed with the gravity of the matter we have had to deal with, in its more extended form, as applied to the wants and necessities of British India as a whole, we naturally feel somewhat complacent and satisfied under the honest conviction that our enquiry has resulted in an expression of opinions and suggestions calculated to advance the material prosperity of one large portion at least of Her Majesty's dominions in the East.

5. In giving expression to these opinions, we are bound to notice that, as the representatives of a Province (for the purposes of an enquiry) or as a Provincial Local Committee, we have not been able to forget that, in investigating the question of one uniform system of weights and measures for all British India, it is not irrelevant to our enquiry to regard with importance the present condition of foreign States contiguous to ourselves, and the effect which any change we may suggest may exercise, not only on them, but on ourselves, in our dealings with them.

6. In fact, we cannot but look upon this portion of our enquiry as one which should particularly be allowed its weight and importance in determining a point which must seriously affect our common traffic dealings with foreign States contiguous to British Burmah, and on which British Burmah mainly depends for commercial support. What we mean is that, under present existing circumstances, British Burmah uses, in common with Burmah Proper, almost one uniform system of weights and measures, and that deriving, as we do, a very large amount of our supplies for export trade from Provinces beyond our frontiers, any change we may be led to adopt with a view of assimilating British Burmah with British India will be likely to entail endless confusion and misconception and difficulty in our commercial dealings with those States, if the same change cannot practically be extended to them.

7. We frankly acknowledge that the difficulty of coping in any satisfactory manner with the broad question which relates to the adoption of one uniform system of weights and measures for the whole of British India, has made us diffident in expressing any general opinion beyond the vocation or requirements of a mere Local Committee.

8. We think we are best fulfilling our duties as a Local Committee in limiting the scope of our report to the question in so far only as our knowledge enables us to form just and sound deductions from actual experience, leaving it in common with other Local Committees to a Central Committee, or to the Government of India, in collating the several reports which will be submitted to it to evolve general conclusions.

9. It is only necessary to remark further, in this tedious preface to our Report, the mode and manner in which our Local Committee has managed its enquiry. We have been principally guided by the able Minute forwarded to us by the Chief Commissioner. A Secretary was appointed to record Proceedings and draw up a final Report. Every question for discussion detailed in the Chief Commissioner's Minute has been laid before us separately, and in order, and the result of our argument on each question was at the time noted down in the Proceedings by the Secretary. Every member at the same time recorded roughly in writing his own reasons upon each question, and the whole of the papers were at the conclusion of the Committee's sittings made over to the Secretary as a basis on which to draw up the Committee's final Report.

10. The points of enquiry prescribed in the Chief Commissioner's Minute resolve themselves into a series of questions which we propose to make the basis of our enquiry and report.

11. The prominent and leading question is undoubtedly that in which we are asked to state whether, in our opinion, having all due regard to British Burmah, and the system of weights and measures existing therein, and those known to exist in the adjacent countries or foreign States contiguous to British Burmah, it will be advantageous to establish the Maund or Seer of India, or to adhere to the method of sale of grain by the Basket, as at present in use throughout the Province, or throughout British Burmah.

12. The fact that this point of primary investigation met with almost immediate unanimity of opinion in favor of the present existing system will of itself argue our localization.

13. We justly concluded that one uniform (and if possible) universal measure of capacity was a grand desideratum in the sale and purchase of all kinds of grain. Our internal trade in grain, and our export trade in this staple commodity to Europe and other countries foreign to British India, is infinitely greater in extent than our dealings in the same or any other article of commerce with British India. In short, rice forms our chief export trade, and that trade has no real reference to any system of measures which can be said to require assimilation with the system of measures in use in British India. No

advantages would be likely to accrue from the introduction into British Burmah of Indian measures of capacity, unless some compensating influences in other articles or commodities of traffic, between British India and British Burmah, outweighed the importance of non-inter-vention in the present immense export trade in grain between British Burmah and foreign Europe. We are convinced no such compensating influences exist.

14. We find, however, that even under our own prevailing system of Baskets or Bushel measure, a very large opening exists for fraud and misconception, from the circumstance that the system itself is not compulsory, and that the size of the Basket is often made to vary. Though we have a system, therefore, we lack uniformity; as a consequence, a door is open for dishonesty in their daily transactions, by traders in grain, of different denominations, who take advantage of a state of uncertainty to adopt at will various standards of their own.

15. The Rice Basket in use, according to its actual standard capacity, professes to weigh about 64 lbs, and yet each merchant's standard varies between 66 lbs. and 86 lbs. Chinese traders, who are thrif- tily inclined, even exceed this maximum weight, so that although we have a measure of capacity, it is of mere nominal value, and subject in extent to the caprices of every trader great and small. The Basket measure of British Burmah owes its origin, we believe, to the Royal Basket of Ava, to which it is supposed to be assimilated both in size and capacity. This Royal Basket of Ava, in its integrity, approaches, within a mere inappreciable difference, to the size and capacity of the English Imperial Bushel; its sub-divisions, too, coincide (as a coincidence let it be assumed) in all material respects with the sub-divisions of the English Bushel.

16. We seem bound, therefore, to decide unanimously, that whatever system is introduced, that system should not only be uniform, but compulsory, to be of any real or practical advantage. Such uniformity will, we believe, be most effectually maintained by the general introduction of the English bushel as the standard measure of capacity for British Burmah, and, we hope in time, for British India.

17. Its introduction will alike protect the Native and European dealer. Confusion and uncertainty, on the score of novelty, will be partly obviated from the circumstance, that no appreciable change will, in reality take place in the actual capacity of the measure already in use in British Burmah, beyond the rendering of that measure uniform and compulsory.

18. The ulterior advantages of such uniformity present themselves at once in the facility which will be given to our dealings with the States adjoining British Burmah, in which the Royal Basket of Ava (the English Bushel) is, nominally at least, recognized, and with which we are so confessedly allied in our commercial dealings. In proposing, as we now do, the general adoption of the English Bushel, as the standard compulsory measure of capacity for British Burmah, we do not wish to lose sight of those prospective results (however remote) which may, in the progress of time, and the increasing rapidity

of communication, necessitate one universal system of weights and measures throughout British India, and the present country. We are next asked to offer

2nd Question.

an opinion as to whether, if a standard measure of capacity is made compulsory by legal enactment, its operations shall be confined to our Seaport Towns only, or to such places as the Chief Commissioner may be empowered under an Act of the Legislature to extend it.

19. The question is one of both political and commercial importance. We have brought before us not only the interests of the wealthier and more advanced classes of our town and country populations, but are obliged to bear in mind at the same time the condition and characteristics of many hundreds of villages over which the influence of any one defined set of rules, or system of trade, has never been felt, and may consequently prove both novel and burdensome.

20. It may be very generally admitted that our chief supplies of grain for export purposes are derived or obtained by means of native agents, who are deputed by the merchants and traders of the larger Seaport Towns, to proceed into the interior, and make advances to cultivators; whilst yet the crops are standing; in some cases contracts are entered into for a certain supply, at a certain rate, within a given time.

21. The daily retail trade in grain for local consumption is small, as compared with the supplies which are brought up to meet the demands of our export trade. If the sale of grain in the latter case can be regulated by a uniformity in the standard measure, by which the demand is supplied, we apprehend that protection in a corresponding degree will extend itself over the lower branches of the same trade, provided only that the uniform system is understood and can be rigidly enforced. In the attempts to enforce a compulsory system of measures, we are inclined to oppose anything having the semblance even of a mere partial introduction.

22. With the knowledge which our joint experience of the condition of our most distant villages has given us, we fail to see how even their interests would be injuriously affected by the extension to them, after due notice, of the standard measure uniformly with its introduction into our Seaport Towns. Our reason for forming this opinion is, that if it is determined to adopt the English Bushel as the new standard measure of capacity throughout British Burmah, in this case no very appreciable change in the present existing measure, as already remarked, will in reality take place beyond the compulsory nature of the new system. Instead of injury to which the hard-working cultivator is frequently exposed by fraud, deception and uncertainty, he will, we think, reap the advantages of being able to make his bargains and deliver his contract supplies, under a test which will possess at least the merit of certainty and uniformity. We all of us know and have heard of contract sales of paddy brought from the interior in which the Burman basket has been mentioned, or stipulated for, as the measure to be used on making delivery, but when delivery has been taken with this supposed basket, its dimensions have been made to exceed the original standard to such an extent as to entail in large sales serious consequences on the vendor. Whilst, therefore, we advocate without

limit a compulsory standard measure of capacity for British Burmah, we wish it to be borne in mind, that the success of the new system will depend as much upon the energy and ability of Government Officials to make the system understood, as on their promptitude and determination to enforce it.

23. If we are averse to half measures, it is only because we have confidence in the possibility and expediency of establishing whole or complete ones.

3rd Question.

24. We may now pass on to consider the next question which suggests itself as a sequence to the anticipated adoption of one standard measure of capacity for the whole country. The point for consideration is, whether the Law shall make it obligatory to sell paddy and all other grain by measure, or by weight. At present the sale by measure universally prevails throughout these Provinces, so that any change from measure to weight would revolutionize the present mode of all grain dealings or transactions. The only departure from the measure system as applied to grain, that we can call to mind, solely concerns our import trade by sea. The import of grain by sea into British Burmah is limited to small supplies of Bengal grain (Chenna) and Madras Grain (Kooltee) which arrive in country vessels from the other side of the Bay of Bengal. This grain arrives in bags containing two maunds. Other varieties of grain may, in like manner, be imported and received and disposed of by weight, but the sum of the whole is infinitely small as compared with our export grain trade with Foreign Europe, and the United Kingdom, or our daily retail sales of grain in the country itself.

25. We cannot, therefore, conscientiously recommend any change in the present existing state of sale of grain measure in British Burmah as opposed to sale by weight, and we do not consider that any compulsory or obligatory system is required by which to restrict the sale of grain either to weight or measure. It appears to us, that any binding obligation in such matters might be made highly inconvenient, and involve a restriction and interference with trade incommensurate with any supposed benefits which the change might be expected to produce. We are of opinion, that our merchants and traders may very consistently be allowed, in adapting themselves to the peculiarities or circumstances of each particular dealing or purchase of grain, to mutually arrange amongst themselves the conditions (including the question whether by weight or measure) under which such sale should proceed.

26. In dissenting, therefore, to any compulsory change in substitution of the present existing plan of grain dealings by measure as opposed to weight, we are convinced that the instances in which there may arise any wish, even to depart from the measure system, will be exceedingly rare. Accordingly, any change for the mere consideration only, without definite object, of adapting our system in British Burmah to that of any one of the systems prevailing in British India, or of meeting the requirements of other countries without corresponding benefit to this country itself, is, we are bound to say, inexpedient and uncalled for.

27. We are thus led on gradually and by a systematic plan, as it were, to consider the subject of weights, as apart from measures, and to offer suggestions either in favor of retaining the Burmese of 100 Ticals now in universal use throughout Burmah, or of substituting the Indian Seer of 80 Ticals. We are not instructed in respect to any manifest advantage which the change may be designed to bring about, nor are we informed whether such a change is even desirable beyond the assumption, that uniformity of system is the desideratum aimed at, obtainable only by the adoption, in British Burmah, of such weights as would ensure conformity with the system in force in British India.

4th Question.

28. This reduces our enquiry to the simple practical question, whether an approximate uniformity even will be established in a complete system of weights for British India, by the adoption into British Burmah of the Madras Seer of 80 Ticals? In the different Presidencies of India, and even the Presidencies themselves, we are aware that various systems of weights prevail. In Bengal we have the Bazaar Maund and the Factory Maund, both of which, not only vary considerably in themselves, but differ from the Madras Maund in a proportionately greater degree than the Madras Seer does from the Burman Viss.

29. If British India is found to present a uniformity in weights capable of extension to its dependencies or more distant Provinces, it would be admissible in theory to anticipate success from the introduction throughout Her Majesty's Eastern Dominions of a similarity in weights and measures which would tend more effectually to identify and link the several ports in one common bond of commercial intercourse. This incentive to uniformity has no real existence. It would be as easy or perhaps far easier to ask the whole of Europe to arrange its system of weights so as to bring them into conformity with any one of the many nations of which it is comprised as to expect that the Indian standard can be reduced to one uniform level throughout the whole of British India.

30. Our duty, however, as a Local Committee, is to deal with that portion of this momentous question which most intimately concerns the interests of British Burmah, and upon which we may with a greater degree of certainty and safety venture to offer opinions.

The Burmese calculation by weight is essentially a Decimal system. It is universally used in every little village throughout British Burmah and the whole Burmese territory. What would be the operation or effect of substituting a system (the Madras Seer for instance, or the Bengal Bazaar or Factory maund) of confessedly less pretension to merit on the one hand or facility in practice on the other? We say unreservedly that a change to either of the numerous Indian systems would be accompanied by untold complexity and confusion. The Burman race, though untrammelled by caste prejudices, are strangely and at the same time naturally bigoted to national customs. They are possibly the most impossible mathematicians in existence. They import Foreigners (Pownas*) and allow them a kind of official status according to their ability to master ordinary calculations. As for themselves they

* Bramins.

have no system of mathematics, the very name of which implies something akin to a divination of the supernatural by means of figures.

31. After many years of practical experience, Burmans, as a whole, even in British Burmah, fail to comprehend the divisional differences between their own tical in silver and the corresponding tola of India (our rupee). For instance, the tical contains in Burmese arithmetic (allowing that there is such a thing) ten "moos" of two annas each, our tola or rupee contains eight "moos," still they designate our half rupee as five "moos," and the difficulty or error in the calculation hardly becomes apparent to them when six moos are demanded (a very frequent one) as the price of any petty bazaar commodity, and ten annas is given. In fact ten annas is very often made to take the place of twelve annas. We all know, who have had any intercourse with the Burmese, the perplexing difficulties with which even this apparently easy and absurd calculation is fraught. It is hardly extravagant to remark that it is the cause (and will continue to be so for years to come) of daily Bazaar bickerings and pice haggings between Indian and Burman petty dealers throughout the country.

32. To follow up, or attempt to solve the maze of difficulties which would arise from any attempt to extend an altered system of weights, is almost beyond the scope of this report, and certainly beyond our ability. Difference of race, language, and religion must have a place in any argument or discussion upon such a question, and when we add that all three may be more or less opposed to a change, not by reason of its novelty, but in consideration of the difficulties which it would entail upon the transactions of every day life, we think we have said enough to lay the matter in a sufficiently detailed form before those who, in deciding the elaborate question of one uniform system of weights and measures for the whole of British India, will have to deal with the varied reports of the several Presidencies and local Governments of India.

33. English weights, we presume, must always be recognized in all parts of H. M.'s dominions in the East as a basis of account. Their introduction as the standard weight for British Burmah, would, no doubt, be attended with the same complication and confusion (though not to a greater extent we apprehend) than that of any one of the Indian systems.

34. It will generally be gleaned, therefore, from this report on the subject of weights and measures, that our Committee are unanimous in recommending a compulsory standard measure of capacity, and that they advocate the adoption of the English Bushel in its entirety for British Burma, in the place of the present Burmese Basket; further, that they advise, on incontrovertible grounds, the retention of the present existing system of weights on account of its universality throughout British Burmah and the adjoining countries upon which British Burmah relies for commercial support, and also because any change in the system would be fraught with difficulties of an almost impracticable character and extent.

35. It only remains for us to remark upon the plan by which the compulsory Bushel measure may be most successfully introduced and

practically enforced. In the first place, it will be essential, we consider that not less than six months' notice be given of any anticipated change. This change should come into operation between the months of June and November of any particular year, the period when the grain trade is slack. It will thereby be less likely to affect or interfere with actual dealings so largely carried on during the rice season. Test bushel measure of the standard capacity with the English sub-divisions complete, might, we think, in the first instance, be procured from England, and be freely and gratuitously distributed throughout the country. These measures should be made of some solid and durable material which would defy all ordinary attempts at fraud. The Magistrates of districts might superintend their issue, so as to ensure to all towns and villages under their charge every facility in completing the object of a uniform system.

We have, &c.,

(Signed) G. FAITHFUL, *President.*

" G. BULLOCK.

" J. BLACK.

" R. S. EDWARDS. } *Members.*

" E. FOWLE.

" E. B. SLADEN, *Hon'y. Secy.*

RANGOON,
The 5th September 1864. }

From Major R. D. ARDAGH, Offg. Commissioner of Arakan Division, to the Secretary to the Chief Commissioner of British Burmah, Rangoon, No. 105, dated Akyab, the 16th September 1864.

In reply to your letter No. 02701 of the 15th ultimo, I have the honor to report, that, in accordance with the instructions contained therein, I formed a Committee composed of 1 Civil Servant (Mr. C. J. Brown, Collector of Customs), 1 merchant (Mr. E. Chrestien of the firm of Burot, Gerber & Co.), and 1 Engineer Officer (Major J. F. Tennant, R. E.).

The Committee elected Major Tennant to be its Honorary Secretary, and I have now received its final report, which I beg to submit in original.

The members of the Committee recommend that the English Bushel, which is nearly identical with the Burmese basket in size, should be adopted as the standard *measure*, and that the standard weights should be the Bengal Maund and Seer which are multiples of the standard coin (Rupee or Tola).

They recommend that weights and measures should be tested, where required, by Government officers authorized to do so, in the same way that weights and measures can be tested on the payment of a small fee by Exchequer arrangement in England.

They do not consider that legislature should extend to the providing that grain should be sold exclusively by either weight or measure.

But they consider that the use of the standard measures and weights be made compulsory, all others being abolished, one year's time being allowed for their complete introduction into the principal sea-port towns and cantonments.

If the legislative enactment is intended to include liquid as well as dry measures, the Committee thinks the standard should be the Imperial measure, and for linear measurement the English yard and foot.

I concur generally with the recommendation of the Committee, but in measures, besides the contents in cubic inches, it may probably be of advantage to declare the weight of their contents in water, and thereon to construct tables on ascertained data by which a fair proportionate weight may be assigned to each description of grain less than which would allow of the purchasers to demand an abatement in price.

The substitution of weights calculated on that of the current silver coinage of the country, it appears to me, would not be attended with any difficulty. If considered objectionable, the tolah weight might still be retained as the standard unit, and the Burmese Peiktha recognized as a weight of 140 tolahs, with its divisions into the half viss of 70 and of quarter viss of 35 tolahs, but this is only recommended in case of the Chief Commissioner seeing cause for otherwise objecting to the introduction of the Bengal Seer of 80 tolahs as the recognized weight of the country.

With the above remarks, I beg to submit the Committee's report, which I hope will be favorably received. I consider the question of such great local importance and interest that in the absence of a Public newspaper, I have taken on me to have printed 52 copies of the Governor General's Resolution, the Chief Commissioner's Minute, and the Local Committee's recommendation, so that the resident merchants and others here may be kept well informed of what is being done. I send you a dozen copies as you may find it convenient to make use of them.

From Major H. NELSON DAVIES, Secretary to the Chief Commissioner of British Burmah, to Colonel H. M. DURAND, C. B., Secretary to the Government of India, Foreign Department, No. 272-810, dated Rangoon, 14th November 1864.

I have the honor, by direction of the Chief Commissioner, to acknowledge the receipt of docket No. 611, dated 7th July last, from Mr Under Secretary C. U. Aitchison, forwarding copy of Resolution by the Right Honorable the Governor General of India in Council, in the Home Department, under date the 20th June 1864. This Resolution refers to the various systems of weights and measures in British India

and directs the assembly of a Committee of well-selected persons in each Province, to report on that important subject.

2. Having received this Resolution, the Chief Commissioner, on the 15th August last, circulated it to the three Divisions of this Province, with a Minute, and directed a Committee to be formed at each chief town, namely, at Rangoon, at Moulmein, and at Akyab.

3. The Chief Commissioner now begs to submit a copy of that

Minute and of the Report of each Committee as noted in the margin, together with the letters transmitting them. Each Committee was well selected. Each contained men of considerable official standing and ability, in this Province, and merchants of the longest and widest experience.

From the Commissioner, Tenasserim, No. 486, dated 13th September 1864, and Report of Committee at Moulmein, dated 29th Aug. 1864.

From the Local Committee of Rangoon to the Secretary to the Chief Commissioner, dated 5th September 1864. From Commissioner of Arakan, No. 105, dated 16th September 1864, and Report of the Akyab Committee, dated 12th September 1864.

4. It may be presumed that the Burmese system of weights and measures is used throughout the whole country, and also (which is important to be noted) in the adjoining countries to the eastward. The mode by which grain is sold is universally by measure, whether in wholesale or retail transactions. The whole of the grain now shipped from the several ports, and exported by river, which trade amounts annually to 450,000 tons, is purchased entirely by measure.

5. The standard grain measure of Burmah is called "A basket or Bushel." The royal standard basket at the capital contains a capacity very nearly identical with the English bushel of 2,218.192 cubic inches. On this account a basket of that exact capacity was introduced some years ago into all bazars throughout Pegu for retail transactions. It is also used at the Frontier Custom houses; but as it would have been impossible to introduce this standard basket into the country generally without a Legislative Act, no attempt was made to do so. The consequence is that the size of baskets for the sale of grain throughout the country varies almost at every village, though all are intended to be of the original capacity sanctioned under the Burmese Government.

6. All the Committees unanimously agree that the Burmese method of selling grain by measure must be preserved, and that, in order to have one general and fixed standard, the English Imperial bushel should be adopted. In that standard measure, and its fractions, all sales, wholesale and retail, should be made, and the use of that measure should be compulsory. Twelve months' notice probably should be given, in order that people may be made aware of the law and have time to provide themselves with standard measures properly stamped. The time when it should take effect is from June to November, when the change would give least inconvenience. These measures should in the first instance be made by Government, and be sold at cost price to the people. They should be made of wood; but standard ones of metal should be made to be retained in Government offices.

7. Mention has been made in the Committees' reports of liquid measure; but for the ordinary transactions of the country, the grain measure and its fractions will suffice. These are given in the margin. In Arakan, where the basket or bushel is smaller than in the rest of British Burmah, the half bushel or khwai will constitute the standard.

8. As regards weights, the Committees consider the Burmese weights, now universally used, should be retained, a fixed standard be legalized, and the use of it enforced. But the Arakan Committee recommend that the Indian maund and seer should be introduced.

9. The Chief Commissioner admits that there is an immense advantage in the ponderary system being founded on the Coin. But he considers it will be found impracticable to supersede the weights now universally used throughout the country. The foundation of these is the *Tikal*, which is stated by Prinsep to weigh 252 grains troy. One hundred Tikals equal one Viss, which is exactly 3.65 lbs. avoirdupois and 140 tolah weight. The Committees, and especially the Committee of Rangoon, strongly recommend that no change shall be made in this system, and consider that a change would in fact be impracticable. In this the Chief Commissioner entirely concurs.

10. English weights are used in the sale of all European goods in the shops of the seaport towns. It appears, then, that the weights of British Burmah should be left alone, and the capacity of the "basket or bushel" to be used in lieu of the ordinary existing uncertain measure to be declared to be 2,218.192 cubic inches, the use of the same to be made compulsory under penalties, and twelve months' notice to be given before it is brought into use. The time when it is brought into use to fall between the months of June and November, when commerce is less likely to be inconvenienced by the change, than if introduced at any other period of the year.

No. 1399, dated 28th November 1864.

Endorsed by Foreign Department.

Forwarded to the Home Department for disposal, with reference to their No. 3839, dated 20th June last, with the remark that the letter is not signed.

MILITARY ORPHAN PRESS, 1864.

Sir

I have the honor to acknowledge your letter of the 26th ultimo, calling upon me to furnish you with my opinion on two questions connected with the Ponderary system therein described; and to submit that I agree with the merchants with whom I consulted on the subject, in the opinion that the *Tolah* ought to be retained as the unit of weight and that the use of all other weights ought to be prohibited by a Legislative enactment.

2

It is not clear what great benefit can be secured by assimilating the weights of India to those of England. This much however is certain that such a course would create an endless confusion in the Ponderary system of the Presidency and afford ample opportunity for practising fraud with impunity, at least for many years to come. Even intelligent natives have hitherto known little or nothing of their own weights. The

Mass of the people will find it almost impossible to master them within any reasonable period

3 They would have nothing that they ordinarily use, with which to form a standard of these new weights. In short it would be an utter innovation causing great injury to the people for a long time to come, while conferring on them no great good at any time.

4 The arguments in favor of retaining the Tolak stated in para 2 of your letter under reply on the contrary appear to be substantially good, while no harm would accrue by not assimilating the weights of India to those of England. Even if the Rupee itself be altered, (a contingency for which there appears to be no necessity as it assimilates in value with English Coins viz 1 R. equals 2 shillings and R. 10 equal to one £, and therefore there exists no reason to change the existing Rupee into something else) the change may be made in the quality of the Tolak without interfering with its weight or in the weight itself in a manner that it may still be useful as a weight.

5 I am of opinion for these reasons that it is expedient to retain

The Tolak as the unit of weight

I have the honor to be

Sir,

your most obedient servant

R. Rajanash Doss
Dy Commr.

Trichinopoly }
4^{Decem} November 1864 }

From. N. Ragunath Rao.
Deputy Collector.

To J. D. Sim Esq.

Dated 4th December 1864
Recd.

N. 1202

Sea Customs House,
Madras 30th November 1864.

From, J. H. Blair Esq.
Collector Sea Customs.

To J. D. Sim Esq.
for Committee appointed to report
on the systems of Weights and
Measures in India.

Sir,
I have the honor to acknowledge
receipt of your letter of 26th Instant. There
is no doubt, that the Pandurary system of
this Presidency requires revision, the
dissimilarity of weights in different Districts
causes the greatest confusion, and difficulties
in Commerce, and trade, and whatever system
is finally adopted, must be totally different
from the present one, in nearly all parts of the
Presidency.

2. So far from there being any
necessity for basing the weights of a Country
on its currency, I consider that it is decidedly
unadvisable to do so, particularly in the present
state of the currency question in India,
which is likely to become even more compli-
cated in the course of a few years by the
increasing

57
increasing production of gold, compared
with that of silver.

3. For purposes of trade and Commerce,
the introduction of the *avoirdupois* system
of English Weights would be of the greatest
benefit, and I see no reason why there
should be in future more difficulty in
providing standard *avoirdupois* weights
for testing purposes, than there is at present in provi-
ding the weights for testing, in different
districts.

4. All merchants would I presume
be obliged to provide themselves with
stamped weights and measures and
would be punishable for using false ones,
as now.

5. For the foregoing reasons I am
decidedly of opinion that the system of
avoirdupois weights should be introduced
here.

I have the honor to be

Sr

Your most obedient servant

M. Blair

Collector Sea Customs

W. J. J.

Tellicherry 1 December 1864.

J. L. Simcox

Chairman of the Committee on Weights.

Sir, I beg leave to answer your Circular of the 26 Nov^r on this subject. In para 3 you observe, that it is "impossible to assimilate the weights of England & India to those of England"; and, in para 2, that it is impossible both "to assimilate these weights, and to retain the Tola or Rasse weight. These admissions seem to me to dispose of the case, and to prove conclusively, that it is one in which India must discard abstractions, and for her own best interests follow the practical lead of England.

3. Look at present matters: I am obliged to weigh the letter I am writing by the Tola weight; if it were to England, by the ounce weight: so that to know the postage of any letter, I must have at hand two different sets of weights with their fractions. Can minutes, vexations absurdity go further? To get even reliable letter weights, I must send to England. So it is in larger matters. Goods are bought by one weight, and always sold for English export by the other. There is not a custom return which is correct. The goods are received by the Indian pound, and entered in the English pounds.

4. As to the Babel of Candia, Manado, Viso, Pollums, Tolao, all different in every score or two of Villages, it is hopeless to think of dealing with them, until the Government sets the example of acknowledging as the only unit of weight, the unit best known in the trade of the world, namely the English pound Avoirdupois. I have the honor to be,

Sir, Your most obedient servant
J. L. Simcox.

Rev. Dr. J. L. Simcox

of

The College

of Arts

of the University of

Cambridge

20th Decr 1864

Received

Submitting specimens

for the study of

the history and

of the weights

of the weights

Kottergherry 1st December 1864

From

No 57.

W. Robinson Esquire

Inspector General of Madras Police

J. D. Sim Esquire

Sir

With reference to your letter dated 26th November 1864, I am of opinion that it is inexpedient to interfere with Pouderny's System of the Country as now based on the Sola or Rupon of 180 grains Troy.

2. The arguments for its retention are clearly stated in Para 2. Further it is a very great and obvious convenience to have the weight of a Country based on its currency, and so reasonable a desideratum ought not to be lightly disturbed. The change of currency is not now before us - The System now obtaining is not in itself radically bad, unsound or inconvenient.

3. But suppose a real necessity for change existed, should we be offering the people

people the most convenient and soundest system of weights, when we propose to force on them, the English Avoirdupois system? I doubt whether scientific men would answer this question in the affirmative. — Should we really be offering them as good a system as they have? —

4. The question of forcing the Avoirdupois weight of England in the Presidency is raised on account of the inconvenience felt by the English Exporting Commercial Community in consequence of the existence of an indigenous system of weights. This inconvenience in varied degrees, has place in all international commerce, and cannot fairly be urged as a ground for imposing on another nation so inconvenient a measure as the alteration of their immemorial and fairly sound system of weights and measures. The balance of inconvenience from such a change would be enormously against the millions of our native subjects.

5. Lastly I do not believe that

the people would adopt the new measures.

I have the honor to be,
Sir

Yours most obedient servant

W. W. Masser

Inspector Genl of Madras Police.

N^o 144.

Camp Tatalagudalin
Tuchingro District
1st December 1864.

From

R. H. Puckler Esquire
Deputy Dir. Rev. Sett.

To

J. J. Jain Esquire
Secretary to the Committee
for the revision of weights
and measures.

Sir,

I have the honor to acknowledge the receipt of your letter of the 26th instant - but as I have no special knowledge of the subject, & am too busily engaged at present to investigate it, I beg that you will excuse my offering any opinion as to the system of weights best adopted to the requirements of this Presidency.

I have the honor to be

Sir

Your most Obedt. Servt.

R. H. Puckler
Deputy Director Rev. Sett.

3

From

W. Robinson Esquire
Chief of Police

To

J. J. Jain Esquire

Dated 1st December 1864

Received

No

12

Submits, please see the
questions of importance
connected with the
Constitution of the
Presidency.

182
From Lieut Colonel P. P. L. O'Connell R.E.
Consulting Engineer for Rys
To Lieut Colonel J. Larpendale R.E.
Mint Master

Sir
I have the honor to acknowledge the receipt of your letter dated 26th November 1864, which calls for my opinion on two important questions connected with the Poolevery system of this Presidency. I regret that I am unable to give any real assistance to the Committee in whose name you write, the Subject referred to being one to which I have never turned my special attention, and at the same time even more difficult perhaps than that of the introduction of a decimal coinage into England, which has not yet, I believe, been fully exhausted, though frequently discussed.

I have the honor to be,

Sir

Your most obedient Servant

Madras
1st December 1864

P. P. L. O'Connell
Consulting Engineer for Rys

From

The Deputy Director,
Revenue & S.D.
Madras

J. D. Shaw Esq.
Secretary to the
Commissioner
Madras

Dated 1st December 1864

No. 114

Requesting to be advised
in regard of the
provisions of the
regulations of this
Presidency.

N^o 441.

Madras Railway,

Audit Office,

2^d December 1864.

Dear Sir,

Referring to your memo of yesterday's date requesting the favor of my views on the Circular of the Chamber of Commerce on two questions of importance connected with the Ponorary System of the Presidency, I beg to submit the following observations on this very interesting, and, to the Railway Company, important subject.

The Chambers are probably aware that under the orders of the Supreme Government the Railway Company in conducting its Traffic operations are obliged to adapt the Indian standard of 82 $\frac{1}{2}$ lbs. and will readily see that the conversion of either local or English weights to this standard is a troublesome and wasteful process.

The Railway Authorities are much interested therefore in the action taken by the Chamber in this matter and hope that it may be practicable to devise some reform in order to assimilate the weights of India to those of England.

If this can be done "within reasonable limits of accuracy, at all times and places" where standard weights may not be available by retaining the Rupee of 180 Grains as the unit of weight, as I venture to think it can, we may hope to receive the

approval

each system of weights is near enough to the

From

Leach, Esq. J. P. M. D. Secy

P. E. Bond, Esq. Railway

To J. P. M. D. Secy

Leach, Esq. J. P. M. D. Secy

Recd 14th Decr 1864

approval of the Chamber to the following Table.

Rupies Sulphur	Indian Nomenclature	English Weights
1	= 1 Solow	
136	= 1 Pallum	
1088	= 1 Vias	$3\frac{1}{2}$ lbs
21760	= 1 Maund	28 "
87040	= 1 Candy	560 "
	= 1 Ton	2240 "

The only point on which it is presumed, the Chamber will require to be satisfied before entertaining the above suggestion, is that the Table is "within reasonable limits of accuracy."

If the equivalent of a Ton in Rupies (87040) as given in the above Table is tested by the Government Standard (6.58 drs) - (Rupies 1) the result gives in the avoirdupois 2237.2 and it is submitted that the difference of 2.8 or 800th part of a Ton will not be appreciable in commercial transactions.

Any objection may be taken to the Vias of the $3\frac{1}{2}$ being the lowest denomination in the English Weights, but it is suggested that this is more than compensated by the minute sub-division to which the Vias can be subjected by the retention of the Indian Solow.

The above Table is not based on any scientific principle, it is merely an expedient to assimilate the Indian Standard with English Weights with as much exactitude as practicable.

I trust nevertheless that it may not be altogether valueless to the Chamber.

A. B. Chinn
Agent & Manager.

Yours
W. J. Church
Chief Accountant.

No. 442.

Madras Railway,
Audit Office
Madras, 3rd December 1884.

Dear Sir,

With reference to my letter No. 441 of yesterday's date on the Ponderary System of this Presidency I find on reference to some able papers on the "Weights, measures, and Currencies of India" which lately appeared in the "Athenaeum and Daily News", that the equivalent of a Solow in Avoirdupois weight is $6\frac{11}{16}$ Drums, as adopted by the Madras Government. Calculated at this standard the Ton of 87040 Solas is equal to 2238.2 lbs avoirdupois, only 1.8 Short of the English Ton of 2240 lbs, instead of the 2.8 as shown in Para 6 of my former letter. A similar result, as of course, arrived at by extending the equivalent of a Solow (6.58 drams avoirdupois) as given in Mr. Sulputt's Circular, to two places more in decimals.

I also observe that I have unconsciously followed Mr. Bayley to some extent in his recommendations for assimilating Indian and English weights. One of Mr. Bayley's propositions, however, was to reduce the Solow from 80 Solas to $77\frac{3}{4}$, but the objection to this suggestion is that it does not admit of sub-division. In the Table forwarded to you yesterday the lowest denomination in the English Weights is a Vias of 136 Solas. This number is capable of sub-division into halves, quarters, and eighths, and may, therefore

each system of weights is near enough to the

therefore be considered preferable to the introduction of a series of 77 1/4 Tolas or say 2 lbs, not capable of subdivision into aliquot parts.

Mr. Bayley's suggestions, if adopted would make a difference of $\text{lb} = 1.42$ in the proposed new Ton of 2000 lbs, which he finally remarks is within the limits of error in weighing. I think the same may be claimed for a difference of $\text{lb} = 1.6$ in the existing Ton of 2240 lbs.

In anticipation of any objection being raised to our proposed Table on account of the lowest denomination in the English weights being the Vies of $3\frac{1}{2}$ lbs or 136 Tolas, it may be as well to remark that the Table provides not only for the retail trade of the country but also of our exports and imports in which probably, the lower denominations of weights may be seldom used, or even supposing they be, we have still a unit capable of sub-division into halves, quarters and eighths.

Yours faithfully,
J. P. Bayley,
Chief Clerk

J. P. Bayley
Agent and Manager

/ True Copy /
M. D. Minto
Chief Clerk

Printed by

3 Dec 1844

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In acknowledging your note of the 26th I do not think the unit of measure for this Presidency than that given to state that in the utter confusion of all native systems of measures, and the hopeless mass of nominal attempts to build up any system or form which will command general respect I see no use in taking the too many measures based on it as the tin snark and should be disposed to recommend as the standard the imperial measure which most nearly corresponds to one of our measures in every general use.

In weights the confusion is if any thing greater, not only do the weights differ in different places but at some places the same designation in different towns or for different weights according to the article to be purchased and manipulation for instance.

The English standard is the measure
for certain goods in certain places
though it is 28, 24, 28, & 32 lbs occasionally
within the lb or the quarter will be in
any opinion quite as convenient
a standard of weight as any that could
be adopted? It would at the present
moment be a necessary transition
and well suited to our anti-slavery
actions.

I have in view not the intro-
duction of some uniform stan-
dard but the introduction of
some standard the best suited to
the ordinary mercantile trans-
actions of the Empire

I do not consider it impor-
tant that every subdivision or unit
of the standard should be
the same in India as in England

I may mention that we stan-
dards of measurement on the total
the intermediate subdivisions used
a test varies so that it affords an clue
to the actual contents. Rice of various
grades, sugar, grain, &c. &c. &c.
all vary in their weight for local
uses. I am Sir Your obedient servant
J. D. Sim Esq

No 289, Simsoob Collectors Office
3rd December 1864

From
James, James, & James Esquire
Collector of Simsoob.

To,
J. D. Sim Esquire
For the Committee
Madras

Sir,
1. With reference to your letter of the 26th in-
-number regarding the expediency of assimilating
the weights of this Presidency to the Avoir-
-du-poids weights of England, I have the honor
to state that in my opinion no advantage
obtainable by the change, can counterbalance
the great practical evil that would follow
an attempt to do away the Rupee as the unit
of weight.

2. I doubt whether any change of system
could be generally introduced, as the attempt
would be at least passively opposed by the
whole native trading community, from their
mere aversion to change.

3. For all practical purposes the
present system of weights is near enough to
the

62
The English for facility of Concession, and
attempts at scientific accuracy in such
matters may afford a field for curious
disquisition, but will be of small interest
to the public at large.

I have the honor to be,

Sir

Yours most Obedient Servant;

James Bruce Minchin
Collector

Consulting Engineer's Office,
Irrigation Canal Company,
Madras, 3rd Decr/64.

Madras, 3rd Decr/64.

To The Committee on Height & Temperature -
Bathurst.

declined 30° S. W. -

1. With reference to your circular of the 26th ult.,
requesting my opinion on the two questions.

1st The expediency of retaining the rupee or tola
of 180 grains Troy as the unit of weight.

2nd. The expediency of assimilating the weights of this Presidency to the Avindupois weights of England.

I have the honor to inform you, that the im-
 portance of carrying out the arrangements alluded to in
 the 2nd question is so great, that whenever a change
 is made it would be particularly advisable to regu-
 late the alterations so as to facilitate commercial
 transactions between the people of the country
 generally, and those classes who are in connection
 with our Colonies and India.

2. It seems to be essential that the pound avoirdupois, which is equal to 7000 grains Troy or 38.8 talas of 180 grains, should be the basis, if not the unit of weight, and though Mr. W. S. Bayley's views on this ^{letter} point, as shown at pages 11 and 12 of "Suggestions for a uniform system of weights and measures throughout India", are worthy of consideration, I am disposed to consider that the pound avoirdupois rather than the

een in

To
 Messrs. J. A. D. and Co.
 for the Committee
 on Finance.
 Dec 28th 1864
 J. A. D. and Co.

Having no opinion
regarding the expediency
of formalizing the union
of the Presidency to the
Executive Council of
England. —

seen of two tbs should be the unit. For purposes of practical assimilation with English weights, the subjoined table would probably answer very well, and it would have the advantage of approximating closely to the commercial weights, and of avoiding, to a great extent, the not readily calculable divisions of the English weights.

1th.
 1 seer = 2 --
 1 maund = 50 seers = 100 tbs.
 1 candy = 5 maunds = 500 tbs.
 1 tow = 4 candies = 20 maunds = 2000 tbs.

3. The submultiples of the pound would be the same, whether a change in the present weight of the tola were made or not, but were a tola of 175 grains substituted within a reasonable time for one of 180 grains, it would greatly facilitate the introduction of a change in the weights, and it would be an undoubted advantage were the current coin a ready test of the pound, and also a substitute for some or any of its submultiples. The following submultiples are suggested.

With any no. of
 menelature
 considered
 appropriate

100 cents = 1th = 40 tolas.
 10 cents = $\frac{1}{10}$ th = 4 tolas.
 1 cent = $\frac{1}{100}$ th =
 1 mille = $\frac{1}{1000}$ th.

4. It seems very possible that in connection with the introduction of a gold coinage into India, it may be necessary to change, to some trifling extent, the quantity of pure silver in the rupee, and if so the objection mentioned by Mr. Bayley at the beginning of page 10 of his paper.

if not, even the high "touch" which would result from making a rupee with the present content of pure silver and with a weight of only 175 grains, would perhaps be thought less objectionable than a tola which could not be made an easy submultiple of the unit of weight for commercial transactions.

5. I regret much that from never having given more than passing attention to the subject of the Committee's circular, I have been unable to do more to assist them in this important investigation.

Have the honor to be,
 Sir,
 Your most obedient servant,
 John Lubbock Captain,
 Council Engineer &c.

2d Ed. 3rd B.

Revenue Board Office
Madras.
3^d December 1864.

From

C. A. Dalzell Esquire
Sub Secretary to the
Board of Revenue

To

J. D. Sim Esquire
Secretary to Government
Revenue Department.

Sir

In reply to your letter
regarding the weights and measures
of this Presidency I have no hesi-
tation in expressing my opinion on the
case as put by you. I think an as-
similation of the weights of India
with those of England, by which I
take you to mean the adoption in
India of the English system of

120 P. 156.

From
The Consulting Engineer
J. J. The Committee on Weights
and Measures.

Dated 3^d December 1864

It appears that the importance
of carrying out the arrangements referred
to in the 2^d question, and the importance
to prevent that whatever a change is
made it would be particularly serious
to regulate the attention to as to
facilitate commercial transactions
between the people of the Presidency
generally, and the officers who will be
connected with the public revenue.

_____ of weights, would
be decidedly preferable to the re-
tention of the Rupee as the unit
of weight.

It is doubtless true
that it is impossible to make any
assimilation of the weights at
present in use in India with
those of England; if the Rupee be con-
tinued at 180 Grains Troy, but if,
as has been stated to be pro-
bable, a gold currency be intro-
duced into India, and if a
Sovereign of the value of two silver
Rupees of 174.54 ^{grains troy} ~~grains~~ each ~~to~~
be taken as the standard of value,
which has also been stated to be
probable, it seems to me to be
questionable whether it would
not be advantageous to retain

72.
the new Rupee which will thus
be placed in circulation as the
unit of weight. As has been ^{clearly} ~~already~~
shown in a series of articles which
have recently appeared in the
"Madrass Daily News," and which I
have now the pleasure to enclose
in the form of pamphlet; with a
unit of weight of these dimensions
there will ~~will then~~ be but little difficulty
in making an assimilation of
our Indian weights with those of
England.

The author of these articles
however hinges his theory entirely
upon the assumption that the
ser weight of two lbs is in general
use in all parts of India. Of the
correctness of this assumption
I

I am not able to judge but it
seems to me that upon its correct-
ness and upon the probability
of a gold currency as above al-
luded to being introduced, much
depends, whether or not it be ad-
visable to attempt to retain
any of our present Indian weights.

The ^{experience} ~~experience~~ of other
countries has shown us the extra-
ordinary inveteracy of ancient
custom in the matter of weights and
measures, and the difficulty of en-
forcing any new regulations in
regard to them even when laid
down by law. I think, therefore,
that an assimilation of the
weights of the two countries by the
adaptation of any known weight
in India to English standards
would,

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would, if found to be feasible,
be more likely to be successful
than the introduction of a com-
pletely new system of weights. For
this reason, therefore, should the
premises of the Author of the
Pamphlet be correct, I would
be in favor of the scheme proposed
by him.

Again the possibility,
if not probability, of the adoption
of the Metrical System in England,
a system which I have just been
informed has very lately been ex-
tended from France to several
other European Countries, and which
is daily gaining favor among the
scientific men of those countries in
which it has not yet been intro-
duced, is a decided objection to the

in India present
the adoption of the English system,
and it becomes a question whether,
if a new system is to be introduced
by law it would not be advisable
to introduce one which has found
such general favor as has the
Metrical system.

On the other hand, the
facts of our already having the
English long measure, as the long
measure of the country, of our
having introduced English land
measure, more or less throughout
the greater part of our Indian
~~possessions~~ ^{provinces}, and of our being about,
as I hope, may be the case, to in-
troduce throughout this Presiden-
cy the English measures of capacity
in all sales of liquor, are good

grounds

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grounds for the adoption of the Eng-
lish scale of weights also.

To sum up then, I am
in favor of the introduction of
the English system of weights into
this country at once, unless it
can be shown either that there
is a strong probability of the
present
general scale being abandoned
in England within a limited time,
or that there is a good ground for
believing that the introduction
into India
of a gold standard of value will
enable us so to adjust the weights
of our Rupee as will allow us
to retain it as the unit of weight,
and by that means to assimilate
in a sufficient degree for all
practical

practical purposes our present
system of weights with the weights
at present in use in England.

I have the honor to be,
Sir,

Your Most Obedient Servant.

Revenue Board Office
Bombay
3^d December 1864.

W. A. Dalrymple

Sub Secretary to the
Bd of Rev.

Recd
Dated 3^d Decr 1864.

To
J. G. Linn Esq.

From
W. A. Dalrymple Esq.
Sub Secy to the Bd of Rev.

1155

From

Colonel W. H. Morster
Barrack Master
Presidency

To

J. G. Linn Esq.

Sir

In reply to your printed circular
letter of the 26th Nov^r 1864 on the Ponderary System
of this Presidency, and especially with reference
to the last para, I have the honor to state that it
appears to me very inadvisable to make any
change in the unit either of weight or measure
unless advocated more generally by the people.

2 The convenience of a few thousand
Europeans in their ordinary bazaar transactions
of the few large mercantile establishments or of the
Gov^t Officers, in mere matters of account, is in
my opinion not worth consideration in com-
parison with the serious inconvenience and
confusion which would attend the introduction
of the English System of ~~weights~~ measures, to the
millions, who are neither familiarised with their
import, nor likely to appreciate the principles
on which they are founded.

3

The opening of the Railways
afforded a favorable opportunity for the

the introduction of the English System along
the lines, as some knowledge of the subject would
have been gradually imported to large numbers
travelling thereon, or residing in the adjacent
villages, and towns, and, who might in time
have appreciated the advantages of a uniform
system; but this opportunity has been lost
and I see no means of effecting a change
but by a subversion of long established and
familiar usages, which would probably be
attended with enormous cost, and be found
repugnant to the wishes of almost all
classes of the population.

I have the honor to be
Sir
Your most Obedt Servt.

Wm. M. M.
SK M

MADRAS, 5th December

1864.

No 2059

To

Colonel Carpenter R.C.
Mint Master & Commissioner
of Issue of Paper Money
Madras.

Sir,

I have the honor to acknowledge receipt of your communication dated 26th ultimo asking my opinion on the expediency of assimilating the weights of India to those of Eng. and.

My experience of the habits of the people of India is so very limited that I naturally feel great diffidence in offering an opinion under the particular circumstances adverted to. But in other countries I have learned to attach the greatest value to uniformity. It has always appeared to me a great desideratum, that one system should be adopted for all nations, & that cannot be attained, it surely is desirable that in British dependencies the weights of England should be used, that variations should be avoided both in weights and measures and in the relations between the two.

Yours

To the Mr. R. M. Mendenhall
Commander Madras

of
J. G. Mendenhall Esq.

Madras
Dec 1864

Offer two specimens regarding
the proposed system of
the Presidency

3. The first Argument for the Tola System suggested in your 2nd para. does not appear to me to be entitled to any very great consideration, because Corn in use is liable to so much deterioration from friction &c that it can scarcely be valuable as a test of the accuracy of other weights. Another analogous Argument has been suggested namely that current Corn is always available when standard weights might not be at hand: but this appears to me to lose much of its force when it is remembered that Scales as well as weights are needed, & that where scales are &c it is easy to keep weights also.

4. The other argument namely that the people are familiar with the Tola System, is I admit a much more serious one. And indeed the only one entitled to any consideration. But the advantages of uniformity are so great that so far as my opinion & that of being offered, I must favor of the English Avindupois.

I have the honor to be

Sir

Your most Obedient Servant

R. Hunter Newton

- Agent & Manager

No. 182.

South Canara Collectors Office,
Mangalore, 6th December 1864

From,

G. Lee. Morris Esq^r

Collector of South Canara.

To

J. D. Sim Esq^r

Member of the Committee for reporting
upon a question of introducing a uniform
system of weights & Measures into British
India.

Sir,

I have the honor to acknowledge the
receipt of your letter of the 26th ultimo.

2. I am of opinion that it is more desirable
to retain the Rupee of 180 Grains Troy as the
unit of weight, than to assimilate the weights
of India to those of England.

3. The people of India are, as you state,
familiar with the Rupee as the unit of weight,
and extreme difficulty would, I think, be
experienced, if an attempt was made to introduce
the English system of weights into the Country.

4. If the avoirdupois weights of England
were the best that could be desired and were
never likely to be abandoned, it might perhaps
be advisable, even at the risk of a good deal
of passive opposition at first, to assimilate the
weights of this Presidency thereto, but as there

From

W. J. L. Carpenter Esq^r

Chief Clerk.

To

J. D. Sim Esq^r

Dated 5th Dec 22 1864.
Recd

is much doubt on both these points, the arguments against the introduction of any such measure, appear to me to be much stronger than those in favor of it.

11. In talking this subject over yesterday with Assistant Surgeon King, at present doing duty with the 8th Regiment &c. I. at Mangalore, I found that it was one to which he had long turned his attention, and I beg therefore to forward herewith a few remarks which he was kind enough to write down at my request, as the Committee may perhaps like to see them.

I have the honor to be,

Sir,

Your most obed^t Servant.

J. Lee Morris.
Collector.

W. P. M.

Memorandum.

1. Of the two alternatives presented in the Circular I should not hesitate to prefer the former (I).

2. The arguments stated in para 2, in favor of retaining the Tola or Rupee as the unit of weight, are so strong that change would be inadvisable unless the alternative proposed were exceedingly desirable. Even were the English Ponderary System fixed and immutable, I doubt if it would be advisable to assimilate the Indian System to it by violent change, while that system is neither universal nor even European, but English solely. Even the United States which retains the Avordupois System have modified it - Their hundred weight containing 100 lbs and their ton (or tin) 2000, instead of 112 & 2240 respectively.

3. But the English Avordupois system is so far from being fixed and immutable that powerful efforts are frequently, if not annually, made in Parliament to substitute for it the French Gramme System, (as well as to introduce the French metre, litre and other standards). And these efforts have been so far successful hitherto, that an Act was passed during the last Session permitting and encouraging, though not compelling, the use of the French System.

4. There can be little doubt that the French System of weights and measures, being decimal, and based upon natural standards, will ultimately be adopted universally by the civilized world.

20 1864 Dec 11

The Collector
of South Kanara

For the Collector
of South Kanara
for reporting upon the
question of introducing
a uniform system of
weights & measures into
British India

Dec 6th 1864
Dec 11 1864
Dec 11 1864

Having with reference to
the letter of the 26th March
last opinion that it is
more advisable to retain
the Rupee of 180 grains
they at the same time
have to acknowledge the
necessity of sending to the
Secretary of the Board of
Trade, London, a copy of
the letter of the 26th March
last.

world. To change, therefore, our Indian system, however clumsy and inconvenient, for another system little more convenient, and likely to be obsolete before many years have passed, would seem to be worse than undesirable.

5. With regard to para 3. It is premature to assume the impossibility of "assimilating the weights of India" founded on the Tola, to those of England, until the problem has been studied with reference to the weights which it appears to me, England will probably ultimately adopt and retain.

6. The contingency of the Rupee being altered appears improbable. So long as it continues to be the standard of value, while the English, Australian and American standard is golden, there can be no possible object in changing its weight or composition. The value of the English Florin is conventional, that of the Indian Rupee is a standard. If either is to be altered for supposed convenience, it should be the former. I do not think probable that any Government will introduce into India the system of a double standard of value, which has long since been abandoned by England and the United States, and having palpably caused great inconvenience, to France will be given up before long, by that country also. Still less probable is the substitution of a golden for a silver standard in the East. And unless in either of these

cases, the weight of the rupee is not likely to be changed.

7. We have already a point of contact between the Indian and the English Soy system - the Soy being equal to 3200 tolas, or 1 maund. (though not the maund of the Table appended to the Circular). But to this fact little or no importance can be attached, as the Soy weight is already in the condition to which the Aron dupois is fast sinking.

Mangalore
5th December 1864

(Signed) H. King
d. d. 8th Regt. 4. I.

(True Copy)

Free Morris
Collector

ESM

No.
137

Namend Division Dy
Collr's office, 7th Decr
1864
183

From,
The Deputy Collector,
Namend Division
To,
J. D. Sim Esquires
Madras.

Sir,
I have had the honor to receive
your letter of the 26th Ult^o, calling for
my opinion on certain points in con-
nection with the Ponderary system of
this Presidency.

I am in favor of assimilating
the weights of India to those of
England. It is true that the Sola or
Rupee, as the unit of weight, is fami-
liar to the people and affords facilities
for testing the weights in current
use, at all times and places; but
the intimate relations of this Country
with England, and the importance
of avoiding all future embarrass-
ment

Remarking that the
Anglo-Indian system
of weights is
unintelligible to the
people of India & that of
England.

It is a letter from
the Collector of the
Namend District to the
Deputy Collector, 1864.
183.

1864, 29/11
183

ment as regards the currency, appear
to me to outweigh the arguments in
favor of the retention of the Tola.

The English-Avoirdupois is already
familiar to the Commercial Classes;
and, once adopted in this Country, I
presume it will not be difficult
to make arrangements for affording
the required facilities for testing the
weights in use, by rendering standard
weights as extensively available
as may be necessary.

I have the honor to be

Sir,

Your most obed^t serv^t

G. Ramdutt

Dy Collector

No 1263

Tanjore Collector's Office
7th Decemr 1864.

From W. M. Cadell Esq.
Collector of Tanjore

To J. D. Esq.
Madras

Sir,

In reply to your letter of the 26th ultimo, I have the honor to state that I am in favor of retaining the Gold as the unit of weight. The arguments adduced in favor of it are, as it appears to me, more cogent than those against it.

2 The Rupee as an equivalent to the recognized standard of weight is now largely used in weighing valuable articles, and by thus supplying the place of standard weights, coincides in no small degree to the convenience of the public. It bears a definite proportion to weights of all denominations in use throughout the country. The introduction of the

From

19

W. M. Cadell Esq.
Collector of Tanjore

dated 7th Decr 1864.
Received.

86
the Avoirdupois weights of England
at this time would in my judgment
of no practical use it would be altogether
unintelligible to the great mass of the
Community and would lead to much
public confusion and inconvenience.

I have the honor to be

Sir,

Your most obedient servant

W. W. F. M.

W. W. F. M.

Collector

1382

Madras Railway Company,

AGENT & MANAGER'S OFFICE,

Madras, December 7, 1864

Sir,

A. B. Elwin Esq.,

Agent and Manager M.R.

To,

Lieut. Colonel J. Carpendale, A.C.

Sir,

With reference to your Circular, dated the 26th ultimo, asking my opinion upon two questions of importance connected with the Ponderary System of this Presidency, I have the honor to offer the following observations.

I. I consider that it is inexpedient to retain the Tola or Rupee of 180 grains Troy, as the unit of Weight, because so long as that is the standard the introduction into this Presidency, of English Weight appears to me, to be impossible.

II. I consider that it is most desirable to assimilate the weights of India to those of England and feel convinced, that if this course were adopted the business of this Railway would be facilitated very considerably.

A.B.

17
1864. Dec 17

From

The Collector

of Coimbatore

To
Lieut. Colonel Carpendale

Assistant

Dated 7th December 1864

No 1263

Subscribing his opinion

as to weight & unit

the Tola and its unit

of weight &

See Memo 116

The accompanying copies of letters
appearing the views of the Chief Accountant to the
Company.

I have the honor to be,
Sir,
Your obedient servant,
Wm. J. Brown
Agent and Manager.

Wm. J. Brown

N^o 4227A

Malabar Collectors office
on Circuit.

Cochin 8th December 1864.

From

G. A. Ballard Esqre.

Collector of Malabar.

To

J. D. Sim Esqre

Madras.

Sir,

In reply to your letter of the 26th
ultimo, I would observe (with all deference, never
having really studied metric questions) that I
think it clearly expedient, for the present at
any rate, to retain the Tola (or Rupee of 180
grains Troy) as the unit of weight in India.

2. I think it would be highly inexpe-
-dient to attempt to assimilate the weights of
this Presidency to the Avoirdupois weights of
England, because there seems every probability
that a more scientific system, on a sound standard
with decimal calculations, will at no distant
period supplant the Avoirdupois tables. Not
improbably the French weights may ere long
be adopted in England.

3. Untill the English system is settled
on a sound basis I would deprecate assimilation
to it. A decimal system with the Tola as
a.

127
a unit would seem well adapted to India;
but the advantages of one uniform system between
the Empire and its dependency are so very
great, that I question the expediency of intro-
-ducing change in the latter without reference
to the system likely to be permanently adopted
in the former.

I have the honor to be

Sir,

Your most obed^t. servant.

E. Maccard
Collector.

Madras
December 1864

From J. H. Leung Esq.
Collector of Madras

To J. D. Sim Esq.
Member of the Committee
for introducing uniform system
of weights & measures.
Madras.

Sir

In reply to para 4 of your
letter dated the 26th November I have
the honor to inform you that I find
it is the opinion of several respectable
natives whom I have consulted
on the subject that it is more
advisable to retain the value
of 180 grains Troy as the unit
of weight than to assimilate
the weights of India to those
of England

2. The weights & measures
in general use in the Madras
District are the same as those
in use in Madras founded on
the Rupee as one Tola according

to

From

G. S. Chandra Esq.
Collector of Madras
18th Decr 1864

to the Government scale given in
your letter under reply - the people
are accustomed to those weights
& it would be a matter of
difficulty & inconvenience to
do away with well accustomed
weights & to introduce a foreign
& novel standard. besides
I do not think that there is any
such perfection about the English
system as to warrant its being
enforced upon India.

I have the honour to be
Sir,
Your most obedt servt,

J. H. Munnings
Collector.

236.

Mr. C. W. Read Esq
Attorney at Law

To, J. D. Sim Esq
For the Committee on
Weights &
Measures.

Sir,
I have received your
letter of the 20th November
asking my opinion as to
whether "It is most desirable to
approximate the weights of
India to those of England, or
retain the Paper of 180.
grains Troy as the unit of weight."
My own opinion
is decidedly in favor of
approximating the weights
of India to those of England.
I have for long entertained
this opinion, & each day
I think tends to strengthen
its correctness, & as commerce
(and)

14

— 1864. Right

From the Collector of
Measures

To John B. B. B.
Member of the Committee
for introducing a
Uniform system of
Weights & Measures

Dated 7th December 1864
No 1609

Informing the adviser-
holding off retaining the
Paper of 180 grains
Troy as the unit of
weight. It was to advise
whether the Indian weights
to those of England.

Per J. B. B.

22.

and trade between the
two countries increase, so
in proportion will the
necessity for the change.

3 The difficulties
of the double system, as at
present, must be productive
of extreme inconvenience &
often confusion, and I
imagine that uniformity
of weights, must be a very
great desideratum.

I believe already
that English weights have
superseded those of this
country in regard to many of
our staple products, - Indigo for
instance which is, I understand,
always bought & sold by
English weight, & transactions
in cloths of all kinds, Salts &
Galic's & Chutney, are
invariably negotiated after
English long measure.

50 Papers have long
fallen

39 fallen into comparative
disrepute I believe for
weighing heavy & bulky articles
and in Ceylon no other than
English weights are in use,
while I may mention that
in the neighbouring Territory
of Pondicherry and throughout
the French settlements, the
weights & measures of the
parent state have long taken
the place of those of the country.
6 It seems to me that
the universal introduction
of English standard weights
is only a work of time,
everything at present converges
that way, and if not authoritatively
sanctioned, it is my belief
that as the two countries are
brought into close proximity
& their mutual commercial
transactions increase, the
Tala system must by force
of

of circumstances allis the
disappears in favor of the
English Americanis situation.

I have questioned
Natives on the subject who quite
agree in what I have stated,
The Deputy Master of my
Treasury whose intelligence
and experience give weight
to his opinion, expresses his
unqualified approval of the
proposed change, and I
cannot but think that after
a while it will be accepted
generally as a benefit to the
Country.

I am the humble
Sir,
Your most obedient
servant

Both Coast
Cm. Cutby
in print
Pattambam
8th December 1801

Charles Reader
C. Reader

Cornibatore
8th December 1864

From W. T. Blair Esq^r

To J. D. Sim Esq^r

Sir,

I have the honor to reply to your letter of the 26th Ultimo, asking my opinion on two questions connected with the Ponderary system of this Presidency.

There can be no doubt of the great convenience that would result from the establishment of one uniform system of weights throughout the Madras Presidency. I confess however that I do not see that there would be any great advantage in assimilating the weights of this Presidency to the Avoirdupois weights of England, and I fear that the attempt to introduce such a change would only result in failure. Were a legislative enactment passed prohibiting the use of any but English weights after a certain date, I have no doubt that it would have the effect of bringing the new weights into use in the few large towns that exist in this

and imports. I prefer not only to the exporters

From 16

The Collectors of

to J. D. Sim Esq^r

for the Committee on Drafts &c

clearance

Dated 5th

Received } 20/12/64

No 236

Submitting his opinion in favor of assimilating the weights of Madras to those of England &c

11/12/64

At

Presidency. Throughout the country generally, however, I believe that, from the difficulty of making the great body of the people understand the English system of weights, and the inveteracy of long established custom, it would be found that the present weights would alone continue to be used, and that the Act would practically remain a dead letter.

3. I am not insensible to the objections stated in your letter to basing the weights of a country on its currency, but, after giving the subject my best consideration, I have arrived at the conclusion that the weight of argument is in favor of retaining the Tola as the Unit of Weight.

I have the honor to be
Sir,

Your most Obedient Servant

W. W. Wain

Officiating Revenue Commissioner

and imports - & refer not only to the exporters

Salem Sub Coll^r Office

Ofs^r

9th December 1864

No. 368

From,

A. S. Thomas Esquire

Sub Collector of Salem

To,

The Committee ^{appointed} for considering and reporting
upon the question of introducing a uniform
system of weights and measures into
British India

Gentlemen,

I have the pleasure to reply to your
letter dated 26th Ultimo.

2. I am of opinion that the argument
used in para 2 is more specious than real -
Such a small unit of weight as the Tola is
of little practical use as a test though it fi-
gures in calculations - The country is not so rude
as it was, when the Rupee however much worn
or clipped was the most trustworthy unit of
weight simply because it bore the impress of
Government -

3. On the other hand great and real will
be the facility afforded to commercial calcu-
lations by assimilating the weights of this
country to those of England with which it is so
clearly connected by ever increasing exports
and imports - I refer not only to the exporters

15

From Mr. S. S. Thomas Esq.
Off. & Sub Collector

To J. D. Van Buren Esq.

Dated 8th Dec 27/1864
Recd 4

15

Ch. H.

and importers themselves, but to all the middle-men; and the producers and consumers who have any thing to do with a comparison of English and Indian prices witness the value of such an assimilation in a flourishing colony like Australia.

4. As the net-work of commerce increases the present difficulty and the difficulty of a change will be both enhanced.

5. With reference to coinage it will be an advantage when a change is required if this leads to the introduction of English money also and the substitution of the decimal for the present 8th and 16th calculation and the use of tokens in lieu of bulky copper coin -

I have the honor to be,
Gentlemen,

Your most obedient servant

W. M. M. M.

Sub Collector

C. V. S.

Having drawn on the
question of introducing
an uniform system of
weights and British coin

No 368

To the Committee appointed for
considering & reporting on the
question of introducing an
uniform system of weights
Dated 9th Dec 1864
Recd

The Sub Collector of Bellary

1573
Ootacamund Zilla (Cann)
13th December 1864.

No 268
1864

From

L. C. Innes Esq
Civil and Session Judge of
Ootacamund

To

J. D. Sim Esquire
Secretary to Government
Madras

Sir,

I have the honor to reply
to your letter of the 26th November 1864.

The questions upon which the
committee have asked my opinion re-
solve themselves as you observe in your
letter into the question of whether it is
most desirable to assimilate the weights
of India to those of England or to
retain the rupee of 180 grains Troy
as the unit of weight.

As observed in your letter there
can be no necessary connection
between the weights of a country and
the weights of coins of its currency;
but as the tola of 180 grains Troy,
corresponding with the weight of
the existing rupee, has hitherto been

quite

the unit of weight, a certain degree of convenience to the people at large has necessarily resulted from this arrangement, as it has rendered it easy to test the accuracy of the weight of goods sold by a practically infallible standard, always present.

It appears to me however that provided proper measures were taken by the Government of India for facilitating a reference to the standards that may be eventually adopted, for periodically testing and verifying the weights in use, and for restricting under penalties the use of any but the standard weights, no practical inconvenience could result from the disuse of the rupee as the unit of weight; or if inconvenience should result therefrom it would be far outweighed, I think by the great and obvious advantages of assimilating the weights of this country to those of England.

Every approach to uniformity in the weights and measures of the world is again to the world at large to the extent to which it tends to

facilitate the calculations required in the international commerce; and the assimilation of the ponderary systems of India and England, countries, the commercial transactions of which with each other and with the rest of the world, are so enormous, would be a most important step in this direction.

It might be questionable how far it would be of advantage to introduce a compulsory decimal system of weights and measures into India before the adoption of such a system in England. The time cannot be far distant when in England the decimal will supersede the existing system. There is no reason however to apprehend that the standard of the pound avoirdupois will in such case be changed, as it presents all the attributes required to qualify it to form the basis of such a system.

If the English pound avoirdupois of 7000 grains (one cubic inch of distilled water at 62 Fahrenheit, the barometer being at 30 inches, containing 252.458 of such grains) be assumed as the unit of weight, the other ascending and descending parts of the decimal scale can be determined without difficulty; and the

possession of a unit of weight which can hereafter be made the basis of a decimal system, is no slight advantage, and I think a strong argument in favour of the adoption of the English ponderary system in supersession of that at present in use in this country.

Practically I do not conceive that inconvenience would arise from the Tola or Rupee ceasing to be the unit of weight.

If proper facilities were afforded the public of obtaining certified duplicates of the standards, it would only be the poorer classes in the more remote villages who would be without them. And this would not be attended with the inconvenience to such persons, that might at first sight be imagined.

One lt would weigh $38 \frac{8}{9}$ Rupees. $\frac{8}{9}$ of a Rupee is $\frac{14}{16}$ annas. so that the weight of lt might for all practical purposes be measured by 39 Rupees; or if greater accuracy were required, a two anna piece placed in the opposite scale would give the weight within $\frac{1}{3733}$ part of complete accuracy.

The Rupee therefore though ceasing to be the unit of weight would still be of immense value as a means of roughly measuring the fractions of a

pound weight, where accurate standards might not be procurable. $19 \frac{1}{2}$ Rupees would nearly equal $\frac{1}{2}$ lt , $9 \frac{3}{4}$ Rs $\frac{1}{4}$ lt , $4 \frac{7}{8}$ Rs $\frac{1}{8}$ lt .

People readily familiarize themselves with what is convenient and I do not apprehend that the people of this country would be slow to estimate the superior advantages attending the adoption of the English ponderary system.

I have the honor to be,
Sir,
your most obedient servant.

Likness
Civil & Session Judge

27

Charingcross
Luth

quite

10
Perendatye. No. 1
Vithy. Dec. 15. 162

To J. D. Sim Esq.

Sir

I have the honour to acknowledge yours of the 26th ultimo, on the expediency of retaining the "Tola" as the unit of weight or of adapting the weights of this Presidency to those of England.

It appears to me that, with a proper system of stamped weights, there can be no advantage in having the currency as a standard, as it would be supposed to be of less value as a test for weight, than the weight itself, bearing the Government stamps, it was to test.

I consider it of great importance both politically and commercially that the weights & measures, as well as all other matters where it can be done without injury to the Dependency, should be assimilated to those of England, thereby binding more closely the two countries together.

I have

the honour to be Sir
your obed^t. servant.

R. M. M.

From

J. J. James Esq.
Jointly & Separately

of

of 8th Decr 1864

756

Camp Teypore December 17th 1864

From D. H. Carmichael Esq^r
Collector

J. J. D. Sim Esq^r
Secretary to Government
Madras.

Sir, In reply to your Circular, on behalf of the "Ponderary System" Committee, I have the honor to state that, for the reasons assigned in Para 2 of your letter, I am in favor of retaining the Rupee of 180 Grains Troy as the unit of weight in this Presidency.

I have the honor to be

Sir
Your most Obedt Servt

D. H. Carmichael
Collector

J. Griffin
H. R. Agnew.



Madras

L. D. Sim Esq^r
Madras

From
J. Gordon Doyle
Bydney Hyman
8/15 Dec 1864.

No 23

Comblator 17th December 1864.

From
A Lashiah Sastryar
Special Assistant to the
Inam Commissioner

To
J. D. Sim Esq.,
Member of the Committee
for Weights & Measures.

Sir,

I have the honor to acknowledge
the receipt of your letter of the 26th Ultimo, and
to state in reply that in my opinion it is best
to retain the Tola of 180 grains Troy as the unit
of weight and that it is quite inexpedient^{even} if it
were practicable to assimilate the weights of this
Presidency to those of England. There is really
nothing to be gained by changing the present
well-understood units of weight while such a change
might on the other hand be attended with much
confusion and inconvenience to the public. The
prospect of a change in the currency is too remote
to render it necessary at present to have recourse
to an entirely new unit of weight. The assimila-
tion of the Indian to the English weights is
quite

1864
Revenue Dept
The Collector of
the District of
the Government
dated 17th December
1864
N. 186
The Collector of
the District of
the Government
dated 17th December
1864
N. 186
The Collector of
the District of
the Government
dated 17th December
1864
N. 186

quite an impracticable as well as an un-
profitable measure - impracticable because
a whole nation cannot be untaught a table
of weight to which they have been accustomed
for generations - & unprofitable because the
interests of commerce would not be very much
advanced by a mere innovation in the system
of weights. Wherever necessary neither the
English nor the native merchant is slow
to comprehend the exact nature of the weight
in which they deal with each other.

I have the honor to be

Sir

Yours most obedient Servant

Abdullah

Special Assistant to the
Iran Commission.

185

Government Secretariat

Calcutta 19th December 1851

Sir

J. S. Millers Esquire

Superintendent Government Botanical
Gardens and Clinchona Plantations
Botanica

J. P. Esquire

Secretary to the Bondary Committee
Fort St George
Madras

With reference to your letter of the
26th ultimo, I have the honor to submit the following
remarks on the Bondary System, but, considering
it is a subject which has not previously engaged
my attention. I feel under great obligations to offer
observation on the same.

1. The present system is no doubt
productive of great inconvenience, in consequence
of a want of uniformity in the weights and measures
of each district, and thus the purchaser is never

* As an example the native name
(Mannungu) in Madras weighs 25 lbs
Bombay 25. 60 = 45 lbs
Bengal 26. " " "
Mangalore 28. 14 " " "
" 28. 55 " " "

certain of the quantity
he is to receive for
a given measure
or weight.

2. To assimilate the weights and
measures throughout India to those of England
would no doubt be productive of great advantages,
it would enable the Home Brother by placing
over

From

J. S. Millers Esquire
Superintendent Botanical
Gardens and Clinchona Plantations
Botanica

27th December

1851

over the market reports of this country, it once to him
an opinion as to whether the introduction of a given
commodity would at that moment be profitable, or
loss, or even neutral. It would simplify the
accounts, and in a political point of view, might
more closely assimilate the two countries. These
observations alone would appear to outweigh the
advantages derived from retaining the Ropie as a
unit of weight, and the facility of allowing for losing
the weights in current use, but this facility would
not be lost by converting the Indian weights into
English pounds, inasmuch as both the Ropie
will weigh a pound, further an inconvenience is
that twenty one and a half Ropies make a pound,
and a quarter Ropie a quarter of a pound, and
Ropies and a silver two annas piece being two annas.
There appears to me to be an objection to the
Ropie, or any circulating coin, being used as a unit
of weight, because it is liable to error from wear, and
the accumulation of dust and dirt within the melting-
it more efficient check in maintaining the correctness
of the weight would probably be secured by making
the adoption of weights and measures a part of the
duty of the Police.

I have the honor to be
Sir,
Your obedient Servant

W. M. Lee
Superintendent of the Port of
and General Customs

Madura 19th December 1854

To J. D. Sain Esquire

Sir,

I have the honor to acknowledge the receipt of your letter dated 26th November 1854.

I am of opinion that it would be better on every account to retain the Tola as the unit of weight for the Ponderary System of this Presidency.

I have the honor to be
Sir
Your Most Obedient Servant

M. Sain

1854 Dec 28
The Hon. J. D. Sain Esquire
Madras
Received
10/10/54

Madras 19th Dec 1854
Received
10/10/54

Per J. D. Sain

No 249

Comptroller's Office
19 December 1864

From J. Pank Esq.

Collector of Comptroller

To J. J. Sui Esq.

Dear Sir,

Sir,

I have received your letter of the 26th ultimo in which I am called on to state my opinion on the following question contained in its 4th para.

"Is it most desirable to assimilate the weights of India to those of England, or to retain the Rupee of 180 grains Troy as the unit of weight, or in other words, is it more desirable to retain the Tola or Rupee of 180 grains Troy as the unit of weight, or to introduce a new unit of weight with which the people are at present unacquainted. It — certainly would be an advantage

if the weights of this country were
assimilated to those of England,
but there is so little chance of
this change being carried out in
practice for a long period, that I
think the most expedient course
is to give up all thoughts of
attempting it. For years past
English weights have been in use
at all our Sea Customs houses, and
yet I doubt whether in many parts
of the country their names even
are known beyond the precincts of
the Custom House by the general
trading community. The brokers and
others who pass goods for the native
merchants know the names of the
English weights, but the majority
of the merchants are ignorant of
them, and this state of ignorance
exists after the weights have been

in use for years. Such I believe it
would be the result of any attempt
to introduce an English unit of
weight. Suppose it was resolved to
introduce it, it would in the first
instance have to be distributed
over the country by Government,
standard weights being kept in
the various offices for the purpose
of comparing and testing weights
made in the country. So far good,
but how are the people to be per-
suaded to make use of the new
standard whilst the *Tola*, which
it is concluded is to be found in
every village in India is at hand
and is considered sufficient for
all practical purposes for testing
weights, and every one in Southern
India it is believed looks to it as
the unit of weight.

Whatever weights or measures

are introduced into the country, the
most certain and expeditious way
of getting them brought into general
use is to have them made in
England of some cheap and lasting
material and kept in the Ladys
see for sale. The measure
of 100 cubic inches is a cylinder of
8 inches in depth by 4 inches in
diameter, and the $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{16}$ measures
if made of common brown earthen
ware would sell by the 1000. I don't
think I exaggerate when I say that
100,000 would be sold within a year
in this district. Measures of this
kind especially the small ones
which would be in the greatest
demand would be cheap, and they
would possess this great advantage
that they could not be tampered
with. Weights also of the same

material so would be cheap, and
would I think be largely purchased.
They should have on them a device
say a crown if it could be cheaply
printed or painted before being
glazed and exposed to heat, and
the denomination of the weight
or measure should also be printed
or painted on it. The success of
the measure would depend on the
price at which the weights and
measures could be put down in
the country.

The measure of 50 cubic
inches is a cylinder 4 in x 4 inches.
I have had made and sold in large
numbers at 4 annas each, the
actual cost of manufacture.
I am not quite sure of the number
but I think that between 20 & 300,
have been purchased in a day at

the Colerain market.

I have the honor to be

Sir

Your most Obedt^t Servant

Wm. D.

Collector-

School of Industrial Arts
Massey 21st December 1864

From
Alex Hunter Esq^r M.D.
Superintendent
School of Industrial Arts
To
J. W. Sim Esq^r
Secretary to the Committee on Weights & Measures.

Sir,
In reply to your letter of the 26th ultimo asking for an opinion regarding the expediency of retaining the Tola or Rupaya of 180 grains Troy as the unit of weight or of assimilating the weights of this Presidency to the Avordupois weights of England I am of opinion that it would be desirable to assimilate the weights of this Presidency to the Avordupois weights of England. A press of important business prevented my replying to your letter sooner. I have the honor to be
Your most obed^t serv^t

Alex Hunter Esq^r
Superintendent

From
J. Brown Esq^r
College of Commerce
27th Dec 1864

Chamber of Commerce
Madras 22nd December 1864

From,

W. Tolpuitt Esq^r
Chairman Chamber of Commerce

To

J. D. Sim Esq^r
Committee
Weights and Measures

Sir,

I have laid before the Chamber of Commerce your Circular Letter dated the 26th ultimo, requesting the favor of the Chamber's opinion on:-

1. The expediency of retaining the Tola or Rupee of 180 Grains Troy as the unit of Weight.
2. Of assimilating the weights of this Presidency to the Avoirdupois weights of England.

The subject was carefully discussed at a Meeting of the Chamber on the 19th instant, and whilst Members are unanimous in recognising the expediency of making weights uniform throughout India, much diversity of opinion exists as to the best course to be pursued in introducing so great a change. It was resolved however, that if there was any prospect of the assimilation to the English weights being generally acceptable the Chamber

To

Wm. Tolpuitt Esq^r
Chairman Chamber of Commerce

22nd December 1864

fixing

would gladly support that standard.
They venture however to think that
the present weights - the Maund of 25 lbs.
the Candy of 500 lbs. with a Ton of 2000 lbs.
would be found the most generally
convenient.

I have the honor to be,
Sir,
Your obedient servant,
J. J. [Signature]
Chairman

From
The Collector
Chairman
of the
Board
23rd Decr 1864

Goodaloor, Madras
26th December 1864

J. E. Sim Esq
Secretary to the Board of Revenue
Madras

Sir,

I have the honor to acknowledge
your letter of 20th November, on the subject
of a ponderary system for the Madras Presidency.

You ask my opinion.

I. As to the expediency of retaining the old
weights of 180 grains as the unit of weight,

II. On the expediency of assimilating the
weights of this Presidency to the Avoirdupois
weight of England -

I would of the two advocate English Avoirdupois weight - There can be seldom
difficulty in obtaining a Standard pound
weight in India -

But as the enforcement of uniformity of
weights throughout the Presidency, will
of itself cause a vast change in the weights
of a great portion of the country, and though
the present government standard be retained,
is not the present a favorable opportunity
of establishing a radical change?

The Avoirdupois ^{weight} of England is
as unwieldy a system, as the present
Government standard, I would

4. Let the unit of weight three and half pounds to one Seer - which will give a basis on which to reduce the Indian system to English weight, and make all other weights a decimal proportion of this -

Thus, 1 Sotah .100. 165 oz. drs. 94.25.34

1 Pollim 10. 5. 0.28.24

1 Pissorur, 1. - 3. 8.

Mannu 10. - 35.

Candy 100. 350

Don 1000. 3500

and for dry measure let the standard be three and a half pounds of water to the Seer -

5. The present arbitrary size of a dry measure Seer, being a source of constant trouble in the country. The Bazaarmen buy their grain by one Seer, and sell by a Seer of another size, with impunity; The Seer measure of one district never agrees with the Seer measure of another district.

I have weighed the contents in water of many different Seers, and find them varying from 2 lbs to 4 lbs in weight, almost at will -

6 I would strongly urge the necessity of enforcing uniformity, in the dry measure, as well as in the weights, used in the presidency

I am, Sir,

Yours obed^t Servant

John W. Munclun

No 163 From

J. B. B. Dykes Esquire,
Collector of Police

To J. D. Sim Esquire,

Member of the Madras Committee for reporting upon the introduction of a uniform system of weights & measures into British India.

I have the honor to reply to your letter of the 26th November last, in respect to the ponderancy system of this Presidency, and regret that of business has prevented my replying sooner.

2. Here can I think be no doubt that a current coin, however advantageous in some ways, should not be adopted for that reason as a unit of weight. And as regards your

first question I therefore recommend that the required unit should be otherwise selected.

3. As regards the second question, I think that the answer must also be in the negative for the same reason, viz that in fixing

fixing the unit of measurement we should select the unit that is least likely to change, most easy of calculation, and most likely to be of general use, not one of which attributes can be affirmed in favour of the English Avoirdupois weight.

4. And I would recommend that in affirming the expediency for a permanent system of a unit of weight more in accordance with the views laid down in the preceding paragraph, for the present I advise should confine her efforts to systematizing existing weights with reference to the present standards, and thus be ready as soon as this difficult question is decided at home to take advantage of the conclusions arrived at there. We shall thus know by that

time what are really our weights in use in the different parts of the Presidency; when the discussion at home is brought to a satisfactory close, a simple table of conversion & a legislative enactment will do the rest.

For instance in your appended table you show the *Vier* and *Seer* as alike. In this District they are different weights and not only are the *Vier* & *Seer* different weights, but the *Seer* varies in different parts of the District. And the *Vier* being invariably $3\frac{1}{3}$ lbs, the *Seer* varies from $9\frac{1}{8}$ to $8\frac{1}{2}$ multiples being also used as single weights & similarly varying.

6. Last year I examined the weights and measures during the *Jannabandi*, and

and the results are given in the District
Gazette of the 21st day last page 313.
The discrepancies observable are I
think wholly due to the varying standards
of currency in use in this country from
time to time. And, thus resulting, these
variations, I need scarcely add, if my
opinion be correct, are strong proof that
a currency standard is not a good or
sound selection to make for a ponderary
unit.

7. In order, in connection with my
operations last year, is a step taken
by the people, which, however satisfactory
for the time is itself it seems to me ^{the} irrefragable
proof, if further evidence were wanting,
of the imprudence of any attempt
at a ponderary system based on a
currency

District Gazette
July 18th 1864
Page 170.

currency standards. Attention has been
chiefly directed to measures of capacity.
And finding these all based on tola units,
which did not correspond with the present
tola, it was unanimously resolved by the
merchants of the Bellary Taluk to take
the present tola as a change upon
change. Their example has been followed
by the neighbouring taluks, will probably
be followed by the whole District and
should the paper be changed again, &
it may be, as you anticipate, at some
future time, the work will have to be repeated
or we lose the facility of text, for which
we select an awkward unit in the first
instance - At the same time I must
add, that so long as the present standard
continues, the measurements determined

on by the people are very convenient and
10 supers weight of well dried rice being
the unit of measurement, or a "nava la b"
the table of measures of Capacity runs on
very easily, and containing the text of well
dried rice, corresponds with the table
of English Avoirdupois weights in
a manner that cannot be accidental.

$$1120 \text{ tolas} = 1 \text{ Runtan} = 28 \frac{3}{4} \text{ lbs}$$

$$4480 \text{ " } = 1 \text{ Tinn } = 115$$

$$89600 \text{ " } = 1 \text{ Pute } = 2303$$

I have the honor to be,

Yours most Obedt. Servt.

H. B. Day Rev
Collector

Conf. 667

100
/AE

Sir, With reference to your letter of the 26th November last, I have the honor to offer the following remarks on the important subject regarding which my opinion is therein invited.

unit of weight.

3. In order to arrive at correct conclusions on the subject, it will be necessary to investigate the principle

[illegible]

principle of the Pondeary Systems prevailing in the different parts of the Country and the function which the Tola performs therein, and also to consider within what limits any alterations of the prevailing weights can be safely and effectually carried out.

4. To begin with the last mentioned subject, it is obvious that the weights by which the masses of the people are accustomed to make their purchases and sales, and which have interwoven themselves in a thousand ways in all their daily pursuits and transactions, cannot be suddenly superseded or even materially altered without violently disturbing their affairs and putting them for a considerable time to serious inconveniences. The difficulties which in this respect are to be apprehended are likely to be greater here than in an advanced Country like England, and from a want of sufficient attention to this point, past efforts to improve the Table of Indian Weights have proved abortive. All that the legislature can safely effect and which lies within its proper function is to give a certainty to the existing weights. But in doing so it can carry into effect two things which will accomplish most of the improvements that are desired. It can make such slight alterations in the existing unit of weight, without altering either the designation

or the notations of the weights as would facilitate their easy conversion into the English Scale. The alteration should not be large, as the introduction of weights materially differing from the prevailing ones, but passing under the same name would be productive of even more mischief, than the arbitrary suppression of the usual weights. But in reforming weights which are more or less uncertain and unequal, a slight alteration of their contents is allowable.

5. Secondly when two or more different kinds of weights prevail at any place, the legislature can retain the most convenient and suppress the rest. Thus were the English weights to come into sufficient use at any place by the force of Commercial relations, the legislature can then come forward and give currency to them alone and suppress all the other prevailing weights; but the introduction of any new system of weights in the first instance can only be effected by commercial relations gradually so as to meet the convenience of the people, and not by an abrupt decree of the legislature; until the people shall have in their own way made themselves familiar with the new weights so as to be able to fall

back

back upon them readily; they cannot be deprived of their accustomed weights without serious inconvenience.

6. I presume the alterations involved in the general introduction of the *avoirdupois* weights in England did not go much beyond the above limits. More cannot be attempted in this country.

7. Next in regard to the prevalent weights of the country, though they differ at different places, the principle of the system is far from being complex. At any particular place the weights ordinarily in use are of three kinds only and are well understood by the people & suited to their requirements. The *Candy* is the largest weight used for account only and is every where twenty times the *Maund*. The *Maund* or *Tulam* the weight of which varies at different places is the next weight which with its multiples and fractional parts is used

for

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for weighing in large transactions; whilst the retail trade is conducted by means of convenient subdivisions known as *Viss*, *Pallam* and *seer* and their fractional parts. These weights are simple and not more than required for the several purposes indicated, so that any alteration of them will be needed chiefly to facilitate commercial relations with other places, for which purpose it may be sufficient to make the two systems of weights easily convertible into each other without attempting to supersede either violently.

8. It will be observed that the *Tola* has no place amongst the ordinary weights above described and it is really little used for actually weighing in commercial transactions except in the case of the precious metals or medicinal drugs.

9. Its supposed usefulness is chiefly for testing the correctness of other weights in use. It must however be observed that this test is little resorted to by ordinary purchasers, and to the scientific examiner, an examination of weights by *Ruppes* worn out by use cannot lead to accurate results, and under any circumstances these expedients cannot dispense

Dispense with the necessity of a compulsory system of stamped weights which alone can effectually prevent fraud. There is no such connection between the coins and commercial weights of England and no inconvenience is felt from the want of it. The possibility of making such test, however, and the further convenience of resorting to coins for the purpose of weighing in the absence of weights within ones reach, will both be secured to some extent, by defining that a certain number of Rupees is equal in weight to a certain number of a current weight, without necessarily adopting the Rupee as the unit of weight.

10. But the Tola has in practice come to perform another important function which would necessitate its retention as a unit of weight. Though little used for actually weighing, nor of indispensable service in testing weights, the Tola is the standard by which the weights prevalent in one part of India are compared with those of another and relatively valued, and the more recent equalisation of the Rupee
throughout

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throughout all the Presidencies has given it a peculiar value in this respect. Commercial relations between one place and another have thus led to the system of rating the weights in use by the Tola as the only general standard unit for all India, and have established practical tables for the conversion of the weights of one place into those of another with reference to the above standard. The facility of this conversion amongst Indian weights is no less important in an improved Pondicherry system than conversion into the English Avoirdupois, and it is a fortunate circumstance that the Tola has already practically accomplished the former, so that a slight change in it to adapt it to the English pound can now accomplish both objects, and thus secure convertibility amongst several weights which under other circumstances might be impossible.

11. The conclusions which I come to from the foregoing remarks are as follows. First that the improvement of the Pondicherry system cannot be well separately made for each Presidency but

but must be carried out as an imperial measure
Secondly, it must be based upon the Tola as a general
unit of weight for all India.

Thirdly The Tola need not be identical
with the Rupee or other current coin. Its
present weight should be slightly but not
materially altered so as to make it a convenient
part of the pound avoirdupois and thus render
all Indian weights convertible into the English
as well as into each other.

12. Neither of the Tolas in the Table annexed
to your letter under reply proposed with reference
to the Madras Commercial weights and the English
weights respectively, possess the qualities required.
The former of them (182.29 grains) is $\frac{5}{16}$ the part
and the latter (204.16 grains) is $\frac{1}{240}$ the part of the pound
avoirdupois both very inconvenient fractions for any
general purpose, and the last mentioned Tola is
open to the further objections of differing too largely
from the present Tola of 180 grains. The above
Tolas are in short derided by fixing one of the
higher weights of the Presidency as the equivalent
of one in the English scale and subdividing
the former according to the existing notation.
But as I have explained the Tola is not so
much needed as a local weight as a general
unit of weight for all India. The proper
mode of proceeding therefore will be to fix
the Tola in the first instance at a convenient
fraction of the pound avoirdupois and then
build up the weights of the several Presidencies
upon it according to the prevailing notations.

13. In a series of letters which appeared
some time back in the Madras Athenaeum
and have been since published as a separate Pamphlet.

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a Tola is suggested which admirably meets
the object in view. The Tola proposed is one
of 175 grains Troy and is exactly the 10 part
of the pound avoirdupois. The difference of
5 grains in comparison with the present Tola
is within allowable limits to which extent
fluctuations in weights have often occurred,
whilst 40 Tolas the equivalent of the pound
avoirdupois is a peculiarly convenient number
comprising the elements of both the
decimal and sex decimal notations according
to either of which all the Indian weights being
built upon the basis of the Tola, they became
readily convertible into English weights. The
Tola of 175 grains is in fact no new suggestion.
It was the general prevalent weight of the
Rupee before the coinage of the present
Rupees, and with reference to the pound
avoirdupois or Rathal as it is called in the
vernacular, passes current to this day as
equal in weight to 40 Tolas, the present
more correct equivalent of 38 and odd Rupees
weight being little known amongst the
people.

14. Adopting the above Tola, the Bengal
weights which prevail over a considerable
extent of the country and are used in the

the Salt transactions of Government in all the Presidencies and upon all the Railways, will be at once converted from the most complicated into the simplest and most convenient standard. Instead of a Bengal Maund the equivalent of which to the English Ton can only be given in a recurring series of decimals (one Ton = $27\frac{3}{4}$ Maunds or $27\frac{1}{2}$), we shall have a Bengal Sur of 80 Tolas or 2 lbs exactly and a Bengal Maund of 40 Surs or 80 lbs, 28 of which will be exactly equal to the English Ton of 2240 lbs, and 25 to the proposed Ton of 2000 lbs.

15. In revising the Madras weights in accordance with the proposed Tola, the only point upon which opinion may differ is whether the Maund shall be one of 24 lbs or 960 Tolas or 25 lbs or 1000 Tolas. The former may be supposed to keep to the existing notation of 960 Tolas equal to one Maund, and is somewhat simpler as regards its subdivisions, the $\frac{1}{16}$ or 8th part of it being exactly equal to 3 lbs, and the Pallam or $\frac{1}{40}$ part of the $\frac{1}{16}$ to 3 Tolas. But facilities of conversion into English equivalents are not so much needed in the lower weights as in the higher. The retail purchases

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chases will be made either in the Indian or the English weight, but there will generally be no occasion to convert the one into the other. It is to the wholesale Merchant who has a certain number of Candies or Maunds of any article to dispose of, it is important that he should have the means of their ready conversion into English Tons according to which his sales may require to be made and bargain settled. Now the Maund of 24 lbs is altogether ill adapted for conversion either into the present Ton of 2240 lbs or the proposed Ton of 2000 lbs which will be respectively equal to $93\frac{1}{3}$ and $83\frac{1}{3}$ of such Maunds. The Maund of 25 lbs on the other hand has been long adopted as a commercial weight in Madras solely on account of its convenience. The Ton of 2000 lbs is equal to 80 such Maunds or 4 Candies exactly, and the Ton of 2240 lbs to 90 such Maunds or $4\frac{1}{2}$ Candies less 10 lbs, which small difference in the latter case will be practically disregarded in wholesale transactions, and if more accurate conversion is needed the difference being exactly 10 lbs is readily calculated and allowed for. We have only to take 10 times

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as many lbs as the ^{obtained} Ton, at the rate of $4\frac{1}{2}$
Candis the Ton, convert the additional 6 lbs
into Tons and add it to the result. The notation
of 4 and $4\frac{1}{2}$ Candis respectively being for all
practical purposes equal to the proposed or pre-
sent Ton has such general currency amongst
the people that it is in itself a conclusive argu-
ment for the adoption of the Maund of 25 lbs.

16. As regards conversion into Bengal
weights, the Bengal Maund will be equal to
 $3\frac{1}{3}$ or $\frac{10}{3}$ Maunds of 25 lbs, and $3\frac{1}{3}$ or $\frac{10}{3}$ Maunds
of 25 lbs respectively. The former will be a
little easier of calculation than the latter as
in converting the Bengal Maunds into those
of Madras we shall have simply to add a
cipher and divide by 3, and in the converse
case multiply by 3 and strike off the last
figure. But the calculation in the other case
is not very difficult and so long as either
Maund is not an exact part of the Bengal
Maund and requires some calculation in
conversion, some great facility of calculation
in the one case is not alone sufficient to
outweigh the arguments in favor of the
adoption of the Maund of 25 lbs.

17. There is still the objection
to disturbing the accustomed notation

of 960 Tolas being equal to a Maund. I must
however remark that in the Districts of
Southern India where the Maund, Tola, and
Pallam weights prevail, the above notation
though published in the orders of Govern-
ment, and I may add the practice of rating
merchandise by Tolas, does not obtain such
currency amongst the people as in the
other Presidencies except in the two Districts
of the Western Coast trading with Bombay.
The Madras weights were originally based
upon the Pagoda and not upon the more
recent silver coin the Rupee or Tola, and
subsequent commercial relations were
not such as to compel the people to have
recourse to the system of rating the
weights by Tolas. The Home trade of
the Madras Coast is entirely with
Bengal and in the articles of grain
and salt which though weighed in
Calcutta are sold at Madras by Maunds
surr. Thus a bag of 2 Bengal Maunds
of rice from Calcutta is converted
at Madras into $6\frac{1}{2}$ Mercals, and
similarly 120 Bengal Maunds of
salt is received as equivalent to a
Garce and not as so many Madras
Maunds; so that no occasion arises

for practically connecting the two weights by the common Tola. To the more intelligent portion of the people familiar with the Tola notation a Maund of 1000 Tolas is as much known as one of 960 Tolas. The former is in fact the commercial Maund of 25 lbs long in use at Madras, and the pound as I have before explained being taken at 40 Tolas weight this Maund is generally known as 1000 Tolas, so that the notation of a Maund of 1000 Tolas is not so foreign to the people of Madras as may be imagined.

18. Another argument for the Maund of 25 lbs is that popular prejudice is in favor of increasing rather than diminishing the contents of the Standard weights. This may be because the Purchasers ^{are} considered to stand in need of protection more than the Sellers, or it may be that the purchasers & consumers of

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articles are popularly believed to constitute the people as distinguished from the sellers or tradesmen. The argument will not apply against the proposed reduction of the weight of the Tola as it is more a unit of account than a weight in practical use.

19. If for the above reason it is resolved to adopt a Maund of 25 lbs or 1000 Tolas, the Madras Table of weights will stand as follows.

175 Grains Troy	=	1 Tola
3 ¹ / ₈ Tolas	=	1 Pallom
40 Tolas	=	1 Pound avoirdupois
40 Palloms or 175 Tolas	=	
or 3 ¹ / ₈ lb	=	1 Tip
8 Tips or 1000 Tolas or 25 lbs	=	1 Maund
20 Mds or 500 lbs	=	1 Candy
4 Candies or 80 Maunds	=	1 Ton of 2000 lbs
1 ¹ / ₂ Candies or 90 Maunds	=	1 Ton of 2250 lbs which is 10 lbs more than the present Ton.

20. In the above Table the number of Tolas in the Pallom & the number of pounds in a Tip viz 8 and a whole number. But for all practical purposes the Pallom, Tip, Maund, & Candy are alone in use amongst the people & the existing notation in regard to them which has been retained is sufficiently simple. It has been retained is sufficiently simple. It must further be remarked that 500 lbs or rather being equal to a Candy, or 3 ¹/₈ lbs being equal to a Tip, has already gained

such an established place in the not alone
in use amongst the people that this circumstance
is also in favor of the above Table

21. It is important to notice that the
pound or rather is already well known to the
people, & though I recommend that the Pallam & Tip
should be continued as the weights to which they
are more accustomed in their retail trade, I would
beg to propose that in all Government trans-
actions and accounts, the Tip & Pallams may
be eliminated, & the scale may run up at once
from the pound to the Maund & the other weights
as follows.

175 Grains Troy	= 1 Tola
40 Tolas	= 1 lb
25 lbs	= 1 Maund
20 Maunds	= 1 Candy
4 Candies	= 1 Ton of 2000 lbs

22. The Madras Sur of weight, or $\frac{1}{5}$ part of the
Tip, is known as 24 Tolas. It will be hereafter
75 of the new Tolas. The Pallam & Tip however being
sufficient for all purposes it may be worthy of
consideration whether the Sur may not well be
suppressed as a commercial weight.

23. The foregoing table of weights will apply
to the greater portion of the Madras Presidency.
The Preceptual Districts will be portions
of Malabar, Canara, Coimbatore, Ma-
dura and Coimbatore where different
Maunds of 1500, 1360, 1200, 1120, 800, & 720 Tolas pre-
vail. Where these weights are alone chiefly in
use, it will be necessary to continue them
properly stamped. With the altered Tola they
will be severally equal to 37 $\frac{1}{2}$, 34, 30, 28, 20 and
10 lbs exactly. The subdivisions of the Maunds in use

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for retail trade at the above places are Pallams or
one hundredth parts, which should also be continued
but in all Government transactions and at the Custom
houses, the general table above recommended may be
well adapted in these as in the other Districts of the
Presidency, so that the people may be thereby gradually
accustomed to the adoption of one general scale throughout.

24. In the Presidency Town of Bombay as in
parts of Canara, the influence of English trade has
already introduced a Maund of 20 lbs, which is
the quarter of the avoirdupois scale; but at other
places of that Presidency like Surat the Maunds
prevalent are different. But it will be found that
the common feature of all the Indian weights is
that they are built upon the basis of the Tola
either on the decimal or decimal notation, so
that the proposed slight alteration of the Tola into
the $\frac{1}{10}$ part of a lb renders them all readily con-
vertible into pounds avoirdupois, even if not leading
to a more complete assimilation with English weights.

25. The Writer of the pamphlet I have previ-
ously referred to proposes to reduce the weight of
the Rupee to 175 grains in order to make it a
subsidary overvalued coin as in England, with the
sovereigns for the substantive currency. But this
measure

measure dependant on the withdrawal of the one hundred millions worth of the present rupees supposed to be in circulation must necessarily be remote and uncertain. On the other hand Mr W. H. Bailey late Member of the Madras Board of Revenue whose compilation regarding weights and measures has furnished much information on the subject, in a recent letter which appeared in the Madras Athanum, sees no occasion for retaining the Tola as a unit of weight either out of deference to prescriptive sanction and long usage, or the convenience of its connection with the current coin. But as I have already explained it will be necessary to retain the Tola as a general unit of weight, but there is no necessity to keep it identical with the Rupee, or to defer its improvement to any alteration of the coinage.

26. In order to carry out the changes proposed, an Act of the Imperial Legislature will be required, declaring in modification of the Bengal Regulation VII of 1833, that the Tola of Commercial weights shall henceforward weigh 175 grains Troy, and that all commercial weights in use in the Country shall be based upon it as a unit, that each of the local Governments or administrations shall

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shall notify, in the Gazette the weights which are to be legal in the different Districts of its Presidency, and that from the time fixed in such notification, the said weights shall alone be used at such places in all purchases and sales, and the possession or use of any other weight shall be an offence, and that all contracts or other obligations thenceforward entered into in weights bearing the same designation as the standard weights, shall be construed by the Courts of Law to be in the standard weights only, and no other, and enforced accordingly. These may be considered stringent rules. But no improvement can be carried out without compulsory legislation. Hitherto too much was attempted and yet without compulsory legislation and so resulted in failure. But I propose to adhere to the weights which usage as commercial relations have established at each place, but to simplify and so slightly modify them as to render them more convenient and accurate. This proceeding cautiously, compulsory legislation can be safely adopted. The change can be at once introduced in all towns and stations which are centres of trade and

and in which Submagistrates or other public officers are located, who can readily aid and instruct the people in the matter, and after a certain time enforced throughout the Districts generally. The change should of course be preceded by a due enquiry and explanation amongst the merchants &c. of each Town in regard to the weights in use and the alterations intended to be made. In order to facilitate the introduction of the new weights Government should offer at each place properly stamped weights for sale at the Cook price of the metal, and should undertake to purchase the old weights in use at the same rate. In Districts like parts of Malabar where Maunds other than those of Madras are in use, both the Maunds and their subdivisions should be declared legal.

27. The above proposals for the regulation of the current weights, it will be seen, will effect a very great and decided improvement. They do not contemplate the compulsory introduction of a single system of weights for all India, because it can only be accomplished gradually and indirectly by the force of circumstances, and because the determination

determination of what would be the best scale of weights is dependant upon some unsettled points. The Bengal weights have been proposed, and they are already in use in the Government salt transactions and upon the Railways. When the best system of weights is determined upon its introduction in Govt transactions is the proper mode of proceeding in order to induce the people to betake themselves to it. Government action however by itself can effect little in this direction unless aided by the natural tendencies of trade, but these point to the adoption of or assimilation with the English weights rather than the supercession of the weight of one part of India by those of another. It is to the former therefore that the efforts of Government should be directed, where the two forces acting together will facilitate the introduction of a single system of weights corresponding with the English standard. No decisive action in this direction however can be taken until the question of the English Ton is settled, until the present inconvenient Ton of 2240 lbs is replaced by a Ton of 2000 lbs. When this is done, the Madras scale of weights given in Para 21 will be substantially the English Avoirdupois scale, and may be generally adopted in

in Madras and Bombay, where it may be expected gradually to supersede the differing local measures. The Bengal weights are not built upon the same system of Candies and Maunds, but have much larger Maunds intermediate between the above and cannot be easily replaced by the other. But the ton and pound will be the same for all India and two systems of intermediate subdivisions for Bengal and the rest of the Country cannot be a serious inconvenience.

28 There is but one ^{more} point to notice. The Rupee weight based upon the current coins may still possess greater convenience in dealings connected with the precious metals or medicinal drugs, and may be suffered to continue as regards these smaller transactions, for the same reason that the Troy weights continue in England notwithstanding several attempts to displace them.

29. In conclusion I am glad to find that the subject of weights which are far more important to the Trading interests, and are easier to reform, is taken separately from the more complicated and less important question of measures, which concern more extensively the agricultural classes, whom reform cannot reach so readily. When the various suggestions made on the subject are considered, the reforms of weights which may be resolved upon can be at once

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Calicut 30 March 1865.

To,
J. D. Sim Esquire,
Secretary to Government.
Fort Saint George.

Sir,
Patal With reference to your
letter of the 26th November last, I
have the honor to offer the following
remarks on the important subject re-
garding which my opinion is therein
invited.

2. As remarked in the above
paper it is impossible to retain the
present Pata of 180 Grains Poy as the
unit of weight, and at the same
time assimilate the Indian weights
to the English avoirdupois. The nearest
exact equivalent of the Pata to the
avoirdupois weights is 250 Pata as
equal to 9 lbs. The former does not
approximate to any of the existing
Indian weights in the place of
which

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which it could be substituted, whilst 9th is not an exact part of any of the higher avoirdupois weights, so that no table of weights capable of assimilation with the English avoirdupois can be based upon the existing Tala. But as such assimilation must be the main object of any improvement in the Poodary systems of the Country, the point which requires consideration is how far the Tala can be abandoned as a unit of weight without practical inconvenience.

3. In order to arrive at correct conclusions on the subject, it will be necessary to investigate the principles of the Poodary systems prevailing in the different parts of the Country and the functions which the Tala performs therein, & also to consider within what limits an alteration of the prevailing weights can be safely & effectually carried out.

4. To begin with the last mentioned subject it is obvious that the weights by which the masses of the people are accustomed to make their purchases & sales, & which have interwoven themselves in a thousand ways in all their daily pursuits & transactions,

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transactions, cannot be suddenly over-
ruled or even materially altered
without violently disturbing their
affairs & putting them for a considerable
time to serious inconveniences. The dif-
ficulties which in this respect are to
be apprehended are likely to be greater
here than in an advanced Country,
like England, and from a want of
sufficient attention to this point, past
efforts to improve the Table of Indian
weights have proved abortive. All
that the legislature can safely effect
& which lies within its proper function
is to give a certainty to the existing weights.
But in doing so it can carry into effect
two things which will accomplish
most of the improvements that are
desired. It can make such slight alter-
ation in the existing unit of weight
without altering either the designations
or the notations of the weight as
would facilitate their easy conversion
into the English scale. The alteration
should not be large as the introduction
of weights materially differing from
the prevailing ones, but passing under
the same name will be productive
of even more mischief than the arbi-
trary suppression of the usual weights.
But in performing weights which are
more or less uncertain & unequal
a slight alteration of their contents
is allowable.

5. Secondly where two or
more different kinds of weights
prevail at any place, the legislature
can

Can obtain the most convenient, and suppress the rest. Thus, were the highest weights to come into sufficient use at any place by the force of Commercial relations, the Legislature can then come forward & give currency to them alone & suppress all the other prevailing weights, but the introduction of any new system of weights in the first instance can only be effected by Commercial relations gradually so as to meet the conveniences of the people, and not by an abrupt decree of the Legislature. Until the people shall have in their own way made them-
selves familiar with the new weights so as to be able to fall back upon them readily, they cannot be dispensed
of their accustomed weights without serious inconveniences.

6. I presume the alterations involved in the general introduction of the avardupais weights in England did not go much beyond the above limits. More cannot be attempted in this Country.

7. Next in regard to the prevalent weights of the Country, though they differ at different places, the principle of the system is far from being complex. At any particular place the weights ordinarily in use are of three kinds only, & are well understood by the people & suited to their requirements. The Candy

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is the largest weight used for accounts only and is every where twenty times the Maund. The Maund or Pulum the weight of which varies at different places is the next weight which with its multiples & fractional parts is used for weighing in large transactions, whilst the retail trade is conducted by means of convenient subdivisions known as Vies, Pallam, Sher & their fractional parts. These weights are simple and not more than required for the several purposes indicated, so that any alteration of them will be needed, chiefly, to facilitate Commercial relations with other places for which purpose it may be sufficient to make the two systems of weight easily convertible into each other without attempting to supersede either violently.

8. It will be observed that the Tola has no place amongst the ordinary weights above described and it is really little used for actually weighing in Commercial transactions except in the case of the precious Metals or medicinal drugs.

9. Its supposed usefulness is chiefly for testing the correctness of other weights in use. It must, however, be observed that this is little resorted to by ordinary purchasers, & so the scientific

Examiner an examination of weights by rupees worn out by use cannot lead to accurate results, and under any circumstances these expedients cannot dispense with the necessity of a compulsory system of stamped weights which alone can effectually prevent fraud. There is no such connection between the coins and commercial weights of England & no inconvenience is felt from the want of it. The feasibility of making such test however and the further convenience of resorting to coins for the purpose of weighing in the absence of weights within ones reach will both be secured to some extent by defining that a certain number of rupees is equal in weight to a certain number of a current weight, without necessarily adapting the rupee as the unit of weight.

10. But the Pala has in practice come to perform another important function which would necessitate its retention as a unit of weight. Though little used for actually weighing, nor of indispensable service in testing weights, the Pala is

120 x 3
the standard by which the weights prevalent in one part of India are compared with those of another and relatively valued; and the more recent equalization of the Rupee throughout all the Presidencies has given it a peculiar value in this respect. Commercial relations between one place and another have thus led to the system of rating the weights in use by the Pala as the only general standard unit for all India, and have established practical tables for the conversion of the weights of one place into those of another with reference to the above standard. The facility of this conversion amongst Indian weights is no less important in an improved Paddy system than conversion into the English avoirdupois, and it is a fortunate circumstance that the Pala has already practically accomplished the former, so that a slight change in it to adapt it to the English pound can now accomplish both objects and thus secure convertibility amongst several weights which under other circumstances might be impossible.

11. The conclusions which I come to from the foregoing remarks are as follows. First

First, that the improvement of the Pundary system cannot be well separately made for each Presidency but must be carried out as an imperial measure.

Secondly, it must be based upon the Tola as a general unit of weight for all India.

Thirdly, The Tola need not be identical with the Rupee or other current coin. Its present weight should be slightly but not materially altered so as to make it a convenient part of the pound avoirdupois and then under all Indian weights convertible into the English as well as into each other.

Neither of the Tolas in the Tola annexed to your letter under partly prepared with reference to the Indian Commercial weights & the English weights respectively, possess the qualities required. The former of them (182.27 grains) is $\frac{5}{192}$ part of the latter (204.16 grains) is $\frac{7}{240}$ part of the pound avoirdupois, both very inconvenient fractions for any general purpose and the last Indian need Tola is open to the further objections of differing too largely from the present Tola of 180 grains. The above Tolas are higher weights by fixing one of the equivalent of one of the Presidency as the & subdividing the English scale. The existing regulations are according to explained the Tola is not a unit needed as a local weight, as a general unit of weight for all India. The proper mode of proceeding therefore will be to fix the Tola in the first instance at a convenient fraction of the pound avoirdupois & then build up the weight of the Presidency upon it according to the existing regulations. In a series of

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some time back in the *Beader's Almanac* have been since published as a separate pamphlet.

a Tola is suggested which admirably meets the object in view. The Tola proposed is one of 175 grains. It is and is exactly the $\frac{2}{3}$ part of the pound avoirdupois. The difference of 5 grains in comparison with the present Tola is within allowable limits to which extent fluctuations in weights have often occurred, whilst 40 Tolas the equivalent of the pound avoirdupois is a peculiarly convenient number is a peculiarly convenient number comprising the elements of both ~~875~~ ⁸⁷⁵ the decimal and sexagesimal notations, according to either of which all the Indian weights being built upon the basis of the Tola become convertible into English weights. The Tola of 175 grains is in fact no new suggestion. It was the generally prevalent weight of the Rupee before the coinage of the present Rupee and with reference to pound avoirdupois or rather as it is called in the vernacular passes current to this day as equal in weight to 40 Tolas, the present more correct equivalent of 38 1/2 Rupees weight being little known amongst the people.

13.

14. Adopting the above Tolas -
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over a considerable ~~part~~ ^{in the} ~~of the~~ Country and are used ~~in the~~
Salt Transactions of Government
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all the Railways, will be at once
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most convenient Standard. Instead
of a Bengal Maund the equivalent
of which to the English Ton, can
only be given in a recurring series of
decimals (one Ton = $27\frac{2}{7}$ Maunds or $27\frac{2}{7}$)
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Tolas or 2 lbs exactly, and a Bengal
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posed Ton of 2000 lbs -

15. In revising the Madras weights
in accordance with the proposed
Tola, the only point upon which
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Maund shall be one of 24 lbs or 960
Tolas or 25 lbs or 1000 Tolas. The
former may be ^{suggested} ~~suggested~~ to keep to the existing
notation of 960 Tolas equal to one Maund
and is somewhat simpler as regards
its subdivisions - the vice is $\frac{1}{8}$ part of it
being exactly equal to 3 lbs and the Pallam or
 $\frac{1}{40}$ part of the vice is 3 Tolas.

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lower weights as in the higher.
The retail purchases will be made
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Maund of 25 lbs on the other hand
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account of its convenience. The ton of
2000 lbs is equal to 80 such Maunds
or 40 Candies exactly, and the ton of
2240 lbs to 90 such Maunds or 45 Candies
less 10 lbs which small difference in the
latter case, will be practically dis-
regarded in wholesale transactions and

if more accurate conversion is needed the difference being exactly 10 lbs is readily calculated and allowed for. We have only to take 10 times as many lbs as the tons obtained at the rate of $4\frac{1}{2}$ Candies the ton, convert the additional lbs into tons and add it to the result. The relation of 4 and $4\frac{1}{2}$ Candies respectively being for all practical purposes equal to the proposed & present tons has such general currency amongst the people that it is in itself a conclusive argument for the adoption of the Maund of 25 lbs -

16 As regards conversion into Bengal weights the Bengal Maund will be equal to $3\frac{1}{3}$ or $\frac{10}{3}$ Maunds of 25 lbs and $3\frac{1}{5}$ or $\frac{16}{5}$ Maunds of 25 lbs respectively. The former will be a little easier of calculation than the latter as in converting the Bengal Maunds into those of Madras we shall have simply to add a cipher and divide by 3 and in the converse case multiply by 3 and strike off the last figure. But the calculation in the latter case is not very difficult and so long as the Bengal Maund is not an exact part of calculation in conversion some greater facility of calculation in one case is not alone sufficient to outweigh the advantages in favour of the adoption of the Maund of 25 lbs.

17 There is still the objection to disturbing the accustomed relation of 960 Tolas being equal to a Maund. I must however remark that in the Districts of Southern India where the Maund & Pallam weights prevail the above relation though published in the orders of Government, may add the practice of rating the weights by Tolas, does

181 56
does not obtain such currency amongst the people as in the other Presidencies except in the two Districts of the western coast trading with Bombay. The Madras weights were originally based upon the Pagoda, and not upon the more recent silver coin the Rupee & Tola, and subsequent commercial relations were not such as to compel the people to have recourse to the system of rating the weights by Tola. The Home Trade of the Madras Coast is entirely with Bengal, and in the articles of grain and salt which though weighed in Calcutta are sold at Madras by measure. Thus a bag of 2 Bengal Maunds of rice from Calcutta is converted at Madras into $6\frac{1}{2}$ Mercals, and similarly 120 Bengal Maunds of salt is received as equivalent to a garo, and not as so many Madras Maunds, so that no occasion arises for practically connecting the two weights by the common Tola. To the more intelligent portion of the people familiar with the Tola notation, a Maund of 1000 Tolas is as much known as one of 960 Tolas. The former is in fact the Commercial Maund of 25 lbs long in use at Madras, and the pound as I have before explained

being taken at 40 Tolas weight; this Maund is generally known as 1000 Tolas, so that the notation of a Maund of 1000 Tolas is not so foreign to the people of Madras as may be imagined.

18. Another argument for the Maund of 25 lbs is that popular prejudice is in favor of increasing rather than diminishing the contents of the standard weights. This may be because the purchasers are considered to stand in need of protection more than the sellers ~~as~~ it may be that the purchasers and consumers of articles are popularly supposed to constitute the people as distinguished from the sellers or tradesmen. The argument will not apply against the proposed reduction of the weight of the Tola as it is more a unit of account than a weight in practical use.

19. If for the above reasons it is resolved to adopt a Maund of 25 lbs or 1000 Tolas, the Madras table of weights will stand as follows;

175 Grains Troy	=	1 Tola.
$3\frac{1}{8}$ Tolas	=	1 Pallam.
40 Tolas	=	1 pound avoirdupois.
40 Pallams, or 125 Tolas, or $3\frac{1}{8}$ lbs	=	1 Tiff.

8 Tiffs, or 1000 Tolas or 25 lbs	=	1 Maund ¹¹² 157
20 Maunds, or 500 lbs	=	1 Candy
4 Candies or 80 Maunds	=	1 Cow of 2000 lbs
$4\frac{1}{2}$ Candies, or 90 Maunds	=	1 Cow of 2250 lbs, which is 10 lbs more than the present Cow

20. In the above Table the number of Tolas in the Pallam and the number of pounds in a Tiff viz $3\frac{1}{8}$ is not a whole number. But for all practical purposes the Pallam, Tiff, Maund and Candy are alone in use amongst the people and the existing notation in regard to them which has been retained is sufficiently simple. It must further be ^{remembered} that 500 lbs or Rattals being equal to a Candy or $3\frac{1}{8}$ lbs being equal to a Tiff has already gained such an established place in the notation in use amongst the people that this circumstance is also in favor of the above Table.

21. It is important to notice that the pound or Rattal is already well known to the people, and though I recommend that the Pallam and Tiff should be continued as the weights to which they are more accustomed in their retail trade, I would beg to propose that in all Govt transactions and accounts the Tiff and Pallam may be eliminated and the scale may run up at once from the

pounds to the Maunds, and the other weights as follows;

175 Grains Troy	= 1 Tola
40 Tolas	= 1 lb.
25 lbs	= 1 Maund.
20 Maunds	= 1 bundy.
4 bundies	= 1 Tow of 2000 lbs.

22 The Madras seed of weight or $\frac{1}{2}$ part of the Tola is known as 24 Tolas. It will be hereafter 25 of the new Tolas - The Pallam and Viji however being sufficient for all purposes it may be worthy of consideration whether the seed may not well be ~~suppressed~~ ^{suppressed} as a commercial weight.

23 The foregoing Table of weights will apply to the greater portion of the Madras Presidency. The exceptional Districts will be portions of Malabar, Canara, Tenasserim, Madurai, and Coimbatore, where different Maunds of 1500, 1360, 1200, 1120, 800, 720 Tolas prevail; where these weights are alone chiefly in use, it will be necessary to continue them properly stamped with the altered Tola. They will be severally equal to $37\frac{1}{2}$, 34, 30, 28, 20, and 18 lbs exactly. The subdivisions of the Maunds in use for retail trade at the above places are Pallams or one hundredth part which should also be continued.

123 26
but in all Govt transactions and at the custom houses, the general table above recommended may be well adopted in these as in the other Districts of the Presidency so that the people may be thereby gradually accustomed to the adoption of one general scale hereafter.

24 In the Presidency Town of Bombay as in parts of Canara the influence of English trade has already introduced a Maund of 28 lbs which is the quarter of the avoirdupois scale; but at other places of that Presidency like Surat the Maunds prevalent are different. But it will be found that the common feature of all the Indian weights is that they are built upon the basis of the Tola either on the sex. decimal or decimal notation, so that the proposed slight alteration of the Tola into the $\frac{1}{40}$ part of a lb. renders them all readily convertible into pounds avoirdupois even if not leading to a more complete assimilation with English weights.

25 The writer of the pamphlet I have

previously referred to proposes to reduce the weight of the Rupee to 175 grains in order to make it a subsidiary over valued coin as in England with the sovereigns for the substantive currency. But this measure dependent on the withdrawal of the 100 millions worth of the present Rupees supposed to be in circulation must necessarily be remote and uncertain. On the other hand Mr W. H. Bayley, late Member of the Madras Board of Revenue whose compilation regarding weight and measures has furnished much information on the subject, in a recent letter which appeared in the Madras Athenaeum sees no occasion for retaining the tola as a unit of weight either out of deference to prescriptive sanction and long usage or the convenience of its connection with the current coin. But as I have already explained it will be necessary to retain the tola as a general unit of weight, but there is no necessity to keep it identical with the Rupee or to defer its improvement to any alteration of the coinage.

26 — In order to carry out the changes proposed, an act of the Imperial Legislature

144 159
will be required, declaring in modification of the Bengal Regulation VIII of 1839 that the tola of commercial weight shall hence forward weigh 175 grains Troy and that all commercial weights in use in the country shall be based upon it as a unit, that each of the local Governments as administrators shall notify in the Gazette the weights which are to be legal in the different Districts of its Presidency and that from the time fixed in such notification, the said weights shall alone be used at such places in all purchases and sales and the possession or use of any other weight shall be an offence and that all contracts or other obligations thence forward entered into in weights bearing the same designation as the standard weights shall be construed by the courts of Law to be in the standard weights only and no other and enforced accordingly. These may be considered stringent rules. But no improvement can be carried out

without compulsory legislation. Hitherto too much was attempted and yet without compulsory legislation and so resulted in failure. But I propose to adhere to the weights which usage ~~as~~ commercial relations had established at each place, but to simplify and so slightly modify them as to render them more convenient and accurate. Thus proceeding cautiously compulsory legislation can be safely adopted. The change can be at once introduced in all Towns and stations which are centres of trade and in which Sub-Magistrates or other public officers are located who can readily aid & instruct the people in the matter and after a certain time enforced throughout the District generally. The change should of course be preceded by a due ^{& explanation} enquiry amongst the merchants of each Town in regard to the weights in use & the alterations intended to be made. In order to facilitate the introduction of the new weights Government should offer at each place properly stamped weights for sale at the cost ^{price} of the metal & should undertake to purchase the old weights in use at the same rate. In Districts like parts of Malabar ^{where} ~~were~~ Maunds other than those of Madras are in use both the Maunds and their subdivisions should be declared legal.

6/ 1850
The above proposals for the regulation of the ~~current~~ weights, it will be seen will effect a very great and decided improvement. They do not contemplate the compulsory introduction of a single system of weights for all India, because, it can only be accomplished gradually and indirectly by the force of circumstances and because the determination of what should be the best scale of weights is dependant upon some settled point. The Bungal weights have been ^{proposed} ~~proposed~~ and they are already in use ~~with the~~ Government Salt & Transit Office and upon the Railways. When the best system of weights is determined upon, its introduction in Govt transactions

is the proper mode of
proceeding in Order to induce
the people to betake them-
selves to its Government action
however, by itself can effect
little in this direction unless
aided by the natural tenden-
cies of trade, but these point
to the adoption of or assimilation
with the English weights rather than the
supercession of the weights of one part of India by those of another.
It is to the former therefore
that the effects of Govt. should
be directed, where the two
forces acting together will
facilitate the introduction
of a single system of weights
corresponding with the English
Standards. No decisive action
in this direction, however, can
be taken until the question
of the English Ton is settled,
until the present inconsistent
Ton of 2240 lbs is replaced
by a Ton of 2000 lbs. When this
is done the Madras Scale of
weights given in Para 19 will

18/1/56
be substantially the English
avoirupois scale, and may be
generally adopted in Madras
and Bombay where it may
be expected gradually to
supercede the differing local
Maunds. The Bengal weights
are not built upon the same
system of Landres and
Maunds, but have
much larger Maunds
intermediate between the
above & cannot be easily
replaced by the other but
the Ton & Pound will be
the same for all India
and the systems of
intermediate subdivisions
for Bengal and the rest
of the Country cannot
be a serious inconvenience.

There is but one
other point to notice. The
Rupee weight based upon
the current coins may
still possess greater con-
venience in dealings con-
nected with the precious
metals or medicinal
drugs and may be
suffered to continue
as regards these smaller
transactions, for the
same reason that the
Troy weights continue
in England, notwith-
standing several attempts
to displace them.

In

In conclusion I am glad to find
that the subject of weights which are far
more important to the trading interests
and are easier to reform is taken separately
from the more complicated and less
important question of measures which
concern more extensively the agriculture
classes where reform cannot reach so
readily. When the various suggestions
made on the subject are considered
& the reform of weights which may be
resolved upon can be at once carried
out without any difficulty.

I have the honor to be
Sir,
Your most obedient
Chapman
and Commissioner
Paper Currency.

carried out without any difficulty.

I have the honor to be,

Sir,

Your most obed^t servant

C Rangiahosla
Assistant Commissioner
of Paper Currency.

Calicut }
30 March. }
1865. }

No. //

From

A. Collector of North Arcot.

To

J. B. Seindley -
For the Pandurary System
Committee.

Sir, In reply to your letter dated 26 November I have the honor to state that I have puzzled over the matter, and have come to the conclusion that the taluk must be retained as the unit of district, and until we change this unit we cannot assimilate the English & Indian standards. I confess I do not see much object in the assimilation, even in England every trade has its peculiar & distinct set of weights & measures; there are "barrels," "hogs" of every conceivable size. e. g. the difference between a barrel of sugar, and a "barrel" of oysters -

I have the honor to be

Sir,

Your Most Obedient Servant

North Arcot
Collectors Kacheri

Chittoor 9 Aug/85

A. Collector.

New Cons. 16th Jan'y: 135th 24 47 48
 16th April - a - 80 10.
 8th July - a - 66 16 1/2
 24th Aug - a - 70 9.
 New Cons. 23rd Oct. 1845 24 34 4
 29th Sept. 1846 - 54 6.
 21st Oct. - 54 6.
 18th July - 151 - 103

Circulated with 9th
 App. 1847 with 10
 Ind. 1848 - 28 -

No. 35

From

The Acting Collector
 of the District of Columbia

To

Mr. J. M. Smith
 Secretary of the Treasury

Dated 9th January 1848
 Received

No. 11

States with 1/2
 to letter of 26th June
 that that local
 measure be retained

legal standard & bright line
more perfect. But the superior
could hardly be prescribed and the
legal standard test. It appears
true therefore that the retention of the
old law must be advocated
only on the ground that it
forms the foundation of the best
attainable system & that
it is undesirable to make
any extensive changes. I think
some will maintain the first position.
It would be at the expense of the
comparative advantage & of the
alternative system proposed
in the present case. It is the best
advantage for
I am strongly impressed with
the advisability of assuming a new
one system. That it is approved
& adopted by the most advanced
nations - but the next to nothing
before such does not suggest
the desirability and the
substitution of the new system.

system or the retention of the
old law. It is a question of
time & of advantage. I think
it is more advantageous to
proceed in favor of the new
principles & to recommend the
government to give priority to
it than to the old law. It is
not a question of time
a question of the best system
in furtherance of the public use
this system is in actual use
in most of the great part of Europe
the most of the great part of Asia
& America and appears to be
the best chance of securing
the most
In view of the probability of
the adoption of the new system
in substitution for the old law
system of law. I think it
decidedly inadvisable to attempt
the introduction of this last scale
into India & considering that any
change that may be made
should have for its object

2/1/55
The limits that
I have set for
myself in the
past have been
the future

See page 1
and page 2
of the volume
this early copy

Rev. Sept. 7
Forwarded to Mr. B.
J. J. Minchin at the
request of Honorable
R. S. Ellis. —
H. St. George
24th January
1868.
Rev. 27. Sept. 7/65 - C. 1231.

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12/15
Report of S. O. O'Quinn Charles of 30 March
1865 in reply to Circular Memo 158
of Ins. Gen. of Nov 1864 on Wrecks
and Shipwrecks.

St. Louis, Mo.

25th 1891

Sir,

I have to offer my apologies for the delay in answering your circular letter of the 26th Nov last on the subject of questions connected with the Ponderry system of the Presidency. Absence from Office must be my excuse.

2. Although you only desired my opinion upon two specified points, I am under the impression that you do not intend the question to be absolutely restricted to these, but rather that it should have reference to the Ponderry system throughout India.

3. I shall assume it is admitted that there is a necessity for the introduction of some change. The impression I receive is, however, caused by the various significations in the same terms of weights as well as by differing terms in various parts of the country, has long caused a reform to be desired. Even in this Presidency, the weights of the Eastern coast differ from the West, and those used in the Northern districts from those of the South; and if a fair account did not explain the equivalents of local terms in English.

English weights, the distant
merchant who supposes it might
be gravely misled.
4. The question then remains,
what is the best system? Or in
traders as a change, having
regard to practical utility & to
the violence that may be done
(inevitable in some degree in any
change in a currency system) to
the habits & usages of the
community. It is of course desir-
able to reduce this latter to
the lowest possible amount; but
can such be done consistently
with large & general utility?

5. The first consideration that
presents itself, is the expediency
of retaining weights already
familiarized in the minds of the
people. Such here is grave diffi-
culty is met on the threshold.
The mass in London is an
essentially Indian weight, but
then it differs in a material
degree in different parts of the
country, representing from 25 lb.
up to 82 lb. To alter it to
any fixed equivalent between
these, would do so great a vis-
sion to the mass, that the
change to any greater equivalent
could not increase it. Again,
that the terms of weight that

17/1/60

are generally familiar are, the
Sear & the Tola. The relation between
these is accepted as 80 Sear to the
Tola, but in practical use it is
often a vague one, as the Sear
is made more or less to relation
to the Tola. An alteration of
the latter would therefore affect
the Sear weight, and from all
this I argue that, as any change
must create a disturbance of
existing usages, there can be no
reason why that change should
not be made at once as beneficial
& practically useful as possible.

6. The 1st point then, pre-
sented by your Committee for
consideration, is - the expediency
of retaining the Tola or Rupa of
180 grains Troy as the unit of weight.

7. No doubt there is a certain
amount of inconvenience in this,
such as is noted in your letter,
but the disadvantages seem to me
quite to be overbalanced it. First,
there is the possible grave difficulty
in the future of an alteration of
the Rupa currency, when a re-
arrangement of the whole monetary
system will be necessary;
and second, the impossibility of
making any system founded
on such a basis, assimilate
with the weights of England. In
arguing

17/161
regarding this letter as an objection
and a fatal one I consider it
to be - I am answering the 2^d point
invited by the Committee, viz the
expediency of assimilating the
weights of this Presidency to the
surrounding weights of England.
I consider this indeed to be
of essential importance in any
scheme, looking towards union
to England, and I believe also
that the time has arrived for
its facile introduction.

8. In former years the use
of English weights (converted
into prepes by Indian regi-
valents) was mostly confined
to the Presidency & Coast towns,
but the expansion of trade since
then, and in a more especial
degree the operations of the
Railways, have familiarized them
to the people far & wide; and
it is perhaps only in mountain
towns & villages that they are now
not understood. Any general
system based upon these, would
therefore I believe be of little use.
What, intelligible & acceptable
what should its character then
be?

9. I incline very strongly
to the adoption of the decimale
system. I feel that it is quite
unnecessary

unnecessary for me to recapitulate
its advantages. The Committee
will be well aware how conven-
ient & successful it has been
found in every country, which
has adopted it, and moreover
how for years past it has been
growing in favour in England,
so that its introduction at home
may possibly occur at no distant
day, and in such case assimila-
tion between the systems of
the two countries will grow
close & complete.

10. I have said that in making
a change in the weights of the
standard for a system to be of
general use throughout India, I
can see no occasion for making
it vary between the present
values, but would take any
weight (not too greatly to va-
riance) which might be found
the most practically convenient.
I propose to make the standard
represent 100 lbs, and the system
of weights may then be best re-
presented in the following
Table. It will be seen that
the only Indian terms I propose
to retain, and because these
are familiar all over India,
and the standard, the seer,
the tolah, adding, as a highest

wright, the sum of 2000 Rs .
 11. The latter would stand

1 Tola =		Rs 0.25
80 = 1 Seer		
4000 = 50 = 1 Maund		150
80000 = 1000 = 20 = 1 Ton = 2000		

And a convenient set of weights to carry this out in large and small transactions would be

$\frac{1}{2}$ Tola = 2 oz. or 64.85 =	Rs 0.125
1 = 4 = 32 =	0.25
$\frac{1}{4}$ = $\frac{1}{2}$ oz. =	0.3125
$2\frac{1}{2}$ = 1 =	0.625
5 = 2 =	1.25
10 = $\frac{1}{4}$ Rs =	2.5
$\frac{1}{4}$ Seer = $\frac{1}{2}$ =	5
$\frac{1}{2}$ = 1 =	10
1 = 2 =	20
2 = 4 =	40
5 = 10 =	100
$\frac{1}{4}$ Maund = 25 =	250
$\frac{1}{2}$ = 50 =	500
1 = 100 =	1000

12. In proposing this I have deferred to the receiver's acceptance of such being its weight; & that to change this weight for too violently upon the usage of the people, especially of the lower classes. But, if this be not considered an insurmountable difficulty, it is obvious that for

for assimilation with the English weights, a scale of 64 Tola to the Seer, could be infinitely preferable, as fractions would be avoided, & the binary weights to be used then stand

8 Tola = $\frac{1}{2}$ Rs	
4 = 2 Rs	
2 = 1 Rs	
1 = $\frac{1}{2}$ Rs	
$\frac{1}{2}$ = $\frac{1}{4}$ Rs	

13. I may observe that, in reference to this Presidency, the $\frac{1}{4}$ Maund in fact remain the same weight as is now used at Madras as a standard; and that we can hardly expect any opposition or difficulty about the proposed new issue. Even for the Maunds, where we see how readily the people have fallen into the use of the Bengal Maund of 82 lbs in the transactions of our Railway. I have the honor to be

Sir,
 Your most obedient
 & devoted servant
 J. D. B. [Signature]

Madras
 Feb 15. 1865

To The Secretary to Govt

Sir, We have the honor to submit our views on the subject of remodelling the Weights and Measures of this Presidency which duty was assigned to us in L.O. dated 7 Sept last.

2. After much consideration we have come to the conclusion that the system proposed by Mr. W. H. Bayly in 1857 though it be not technically the most perfect - is practically the best in the present circumstances of this Presidency and with one modification we recommend its adoption as promising the greatest advantages and causing the least inconvenience to the people.

3. As regards weights we considered it advisable to ascertain the

Madam

4 -
J. Quackenbush Esq
15th Dec 1863

21. 31

the opinions of several gentlemen
as to the expediency of retaining the
Sola or Rupee of 180 grains Troy as
the unit of weight. The majority of
the gentlemen whom we consulted are,
as will be seen from their replies herewith
submitted, in favor of abandoning
the Sola of 180 grains as the unit
of weight and of assimilating the
weights of India to the Avoirdupois
weights of England. In these opinions
we entirely concur.

If the Sola of 180 grains
be retained it is impossible to assimilate
the weights of India to those of
England which we consider a matter
of the first importance. There is no
doubt a certain degree of convenience
and advantage in having
weights which correspond with
present coins, within such limits as
admit of the former being tested by the
latter. but for this purpose exact
correspondence is not necessary. new
coins are not always procurable nor
even

even with them can exact accuracy
be attained. Practically we believe
that the test by coin is rarely resorted
to, and there are very cogent objections
to basing the weights of a country on
its currency when that currency is liable
to change and open to improvement.
The English Avoirdupois
pound which there is little doubt will
be retained for many years to come
whatever changes may be made in it
multiplied and sub-multiplied contains
7000 grains Troy, and a fortieth part
of it would give a Sola of 175 grains
being only 5 grains less than the present
rupee - a difference too small to vitiate
the test by coin worn by use as
these average only 178 grains. The
only advantage of having weights
corresponding with the currency would then
be attained within limits of accuracy
sufficient for all practical purposes.
Differing on this point from Mr. Bayley
we would make the Sola unit of weight
as distinguished from the Sola of currency
equal to 175 grains, and starting with
this

this we would adopt Mr. Bayley's proposal of having a seer of 2 lbs. and a maund of 100 lbs and a Candy of 2000 lbs as the higher denominations.

6. The present standard weights of the Marras Govt do not recognise the "seer," but there can be no doubt that as observed by Mr. Bayley, it is very generally known throughout India that its most general equivalent is 80 Solaks.

7. The binary scale is the one with which the people of this country are most familiar, and as the facility of introducing any new system of weights depends very materially on the degree in which it adapts itself to the convenience, the usage and education of the people in their ordinary transactions, it is desirable that the seer should be subdivided on the binary principle. In large mercantile transactions on the other hand the decimal system is undoubtedly the most convenient, and as there is some probability of its being adopted in England, it

it would, we think, be well to make the maund and Candy equal to 100 lbs and 2000 lbs respectively and thus escape the chance of another change being considered necessary before long.

8. The following table shows the different weights which we now begin to recommend.

1 <u>Sola</u>	= 175
80 <u>Solaks</u> = 1 <u>seer</u>	= 14000 = 2 lbs
50 <u>seers</u> = 1 <u>maund</u>	= 700000 = 100 lbs
20 <u>maunds</u> = 1 <u>Candy</u>	= 1 <u>ton</u> = 2000 lbs

The seer would be subdivided into

1/2 <u>seer</u>	= 7000 grains	= 1 lb = 40
1/4 <u>seer</u>	= 3500	= 1/2 lb = 20
1/8 <u>seer</u>	= 1750	= 1/4 lb = 10
1/16	= 850	= 2 oz = 5
1/32	= 425	= 1 oz = 2 1/2

In like manner the maund would be subdivided into the

1/2 <u>maund</u>	= 50 lbs
1/4 <u>maund</u>	= 25 lbs (the present <u>Marras</u> <u>Meer</u> = <u>cautle</u> <u>maund</u>)

If, however, it be considered desirable to follow the Avoirdupois system closely, then the maund might be made equal to 56 seers or 112 lbs, the quarter and half maund being respectively 28 and 56 lbs, while 20 such maunds would be the present

present Ton of 2,240 lbs. - The Maund and Candy we propose though not corresponding with the present Cwt & Ton of England are easily convertible into them -

We concur with Mr. Bayley Linear Measure that the English yard and foot should be adopted - with, however, the present English subdivisions - The English linear measures are now largely followed by the people and are exclusively used in the exclusive transactions of the Public Works Department and Mercantile Firms -

In the Revenue Survey Land Measure which is now in rapid progress and is to be carried out in every district of the Presidency the English Acre with decimal subdivisions is solely used - We recommend therefore that the Imperial Acre, decimally subdivided be adopted by Government -

We consider Mr. Bayley's Measures of Capacity arguments in favor of a still exactly equivalent to an Imperial Quart to be conclusive - and we recommend the adoption of this measure, subdivided by rights with a multiple of 100 Seers as proposed by him - Heaped measures should not be recognised and we would recommend that

that the dimensions of the measures should be defined by Law -

We have not thought it necessary to trouble Govt with a lengthened statement of the reasons which have led us to recommend the adoption of Mr. Bayley's scheme which, we may remark, has met with very general approval and was presented on the Govt of India six years ago by the Govt of Madras -

For the introduction of new Weights and Measures a legislative enactment is undoubtedly necessary but the change should be restricted at the outset to the Chief Towns of the Presidency - time being allowed and facilities afforded for the purchase and alterations of the Weights and Measures in use, at as little expense and trouble as possible - The new system would of course be adopted after sufficient notice in all Govt transactions, on the Railways - in the Salt, Customs & other Departments -

We have the honor to be,
Sir,
your most obedient servants -

Wm. D. Lawrence
J. D. Lawrence

Madras Dec 1864

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La

Sr. We shall be
obliged by your favor-
ing us with your opi-
nion on two questions
of importance connec-
ted with the Ponderary
system of this Press?

- I The expediency of re-
taining the Tola or Ru-
pee of 180 grains as
the unit of Weight
- II The expediency of
assimilating the weights
of this Presidency to
the Avoirdupois
weights of England

Dec 1 July 14 1864

Dec 1865. Dec 1865
No. of 400 792 1024

From
the Committee
for weights and
measures.

Dated

Received 19th of 1865

No. 2. 1865 2334-27 1865

Submitting this
report on the subject of
standardizing the weights
and measures of this
Presidency

Dec 1865 Reg 1865

The arguments in favor
of retaining the Tola or
Rupee as the unit of weight
are the facility it affords
for testing the weights in
current use within rea-
sonable limits of accu-
racy - the fact of the cur-
rent coin having always
been the unit of weight
in this country and the
consequent familiarity
of the people with such
an arrangement. —

The arguments against
the retention of the Rupee
as the unit are, the im-
possibility of assimilating
the weights of India to
those of England

and the contingency
of the Rupee itself
being at some future
time altered. There is
no necessity for basing
the weights of a coun-
try on its currency &
it is a question whether
it is advisable to
enhance the difficul-
ties attendant on a
change of the currency
should circumstances
ever render a change
necessary. —

You will perceive
from the above that
the questions we ask
really resolve themselves
into this - Is it most
desirable to assimilate
the

the weight of India to
those of England or to
retain the Paper of 180
Grains Troy as the unit
of weight? It is im-
possible to do both.

We append a table
showing the result of re-
taining the present French
weights, of adopting the
present Commercial
weights of the Pres^d,
and of adopting the
English Avoirdupois.
In this Table we fol-
low the subdivisions
used in the Pres^d.

We beg the favor
of an early reply.

We

167
We have the honor to
be
Yours most obed^t Serv^t

1-12-92

17-12-93

30.6.16

Minute

170

I have read the report of the Committee appointed to consider the best mode of remodelling the weights & measures of the Presidency. The following is the substance of their recommendations contained in their report -

A Tola or Rupia of 175 grains instead of 180 is to be the unit of weight.

80 Tolas = 1 Seer or 2 lbs avoirdupois.

50 Seers = 1 Maund or 100 lbs.

20 Maunds = 1 Candy or 2000 lbs.

The Seer would be subdivided into $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{16}$ $\frac{1}{32}$ parts equal respectively

to 40 Tolas - 20 Tolas - 10 Tolas - 5 Tolas - 2 1/2 Tolas -

1/2 Tola measure. The Maund would be divided into $\frac{1}{2}$ Maund = 50 lbs.

$\frac{1}{4}$ Maund = 25 lbs. which is equal to the Madras Mercantile Maund &

As regards measures of
length the Committee
propose to adopt the
English Gun as foot.
for land measure they
recommend the Acre
divided decimally.

For measures of capacity
they adopt Mr. Playfair's
recommendation of a
Litre equivalent to an
imperial Quart. and
then they propose to divide
into Eighth for lesser
measures, and to
multiply it by 100 for
larger measures.

The Committee in pointing
out adopt generally
the recommendations of
Mr. Playfair, and save
themselves the trouble of
making specific recom-
mendations by referring
to the report of that Gentle-
man.

I regret that I consider
that a slovenly manner
prevailing in a report to
the Govt.

And now as regards the
particular recommendations
submitted.

The Committee while they
point out the absence of
all necessary connection
between the Standard
Weight and the current
coins of the country are
disposed to maintain
the Tola as the unit
of weight but they pro-
pose to retain the name
only and to separate
altogether the Coin from
the unit of weight by
making the latter 175
grains while the Coin,
at all events for the pre-
sent, will retain its
present standard weight
of 180 grains. -
I am disposed to believe
that this would be the desir-
able mode of settling
on a difficulty without
running too much
counter to native ideas,
fancies, or prejudices.
The change however will
make the present Rupee
utterly useless as a weight
unless the act also says
that a given number
of Rupees, say 35, shall be
equal to 36 Tolas.

If it is stated the *Seer* is
 well known and used
 as an equivalent to
 80 *Tolake* it would cer-
 -tainly be advisable to
 retain an established
 weight at its nominal
 value of 80 *Tolake* in
 2 lb avoirdupois -
 and to start from this
 fixed point both
 upwards & downwards
 experience however has
 shown that it would
 be advisable to have
 a name for each
 division of the scale
 and I should think
 it would be well to
 start from the *Tolake*
 as below -

1 <i>Tolake</i> =	<i>Drains</i> 175
5 <i>Tolake</i> =	2 05.
10 <i>D</i> =	4 05 or whatever name may be considered expedient
20 <i>D</i> =	8 ounces 1/2 lb
40 =	16 03 1 lb
80 =	1 <i>Seer</i> 2 lb

I do not think that it
 would be desirable to
 jump at once from

one *Seer* or 2 lb to 56
Seer or one Hundred *Seer*
 on the contrary I should
 prefer to maintain the
 pound at its present
 or nearly its present
 value, and say
 14 *Seer* or 20 lb = one
 pound -
 4 Maunds one *Cot*
 20 *Cot* one *Ton* -
 or if it be desirable to
 maintain the *Candy*
 as a weight the Table
 might stand
 5 *Cot* or 20 Maunds
 = one *Candy*
 2 *Candies* one *Ton* -
 The great object I believe
 to be to make as little
 change as possible either
 in the weights or their no-
 -menclature - subject of
 course to the condition
 that the name shall be
 general as well as the
 weight - and that the
 weight will be easily
 assimilated to the English
 standards -

The linear measure
& the land measure
have been practically
applied: the yard
associated with its
multiples & submulti-
ples is taken as the
standard for length
and the acre is the
standard land measure.
I have my doubts however
whether it would be
wise to divide the acre
decimally without
giving names to certain
of the subdivisions.
Land is sold in Iowa
or at all events in Maryland
by the ground it would
be as well to have some
divisions of the acre
approximating these to
local divisions &
calling them by local
names.

As regards measures of
capacity I am rather
afraid that we shall
attempt too much yet
insist not only on the
adoption of different
measures than in
common use, but also

173
crisp the adoption of
the struck instead of the
heaped measure: even
in England potatoes are
sold by the heaped
bushel as are coals
when they are sold by
measure. all that we
can do I think is to
establish measures as
nearly approximating
to those now in existence
as possible. to define
the height & diameter
of the cylinder which will
contain the quantity
and leave it to the seller
and buyer to fight out
the question of heaped
or stricken measure.
Whatever may be decided
on as the Acre I think
that specific names as
I have before stated should
be given to the ~~divisions~~
multiples & submulti-
ples. and I do not think
that we should jump
at once from 1 measure
or less to 100 measures.

W. Deane

Received 1865 Sep 18
Pro of Govt for Sept

Minute by the Honble
the President.

Rev & Co 22 34
17-7-

Recording his
views with reference
to the report of the Com-
mittee for considering
the mode of remodelling
the system of weights and
measures of this Presiden-
cy.

No 561

Minute

140

171

The Committee consider
the system of weights &
measures proposed by
Mr W H Bayley in 1857
although scientifically
the most perfect, to be
practically the best in
the present circumstances
of this Presidency, &
not only modification -
that of ~~adopting~~ taking
as the unit of weight a
pound of 175 grains - the
recommendation of this system, as
promising the greatest
advantages and con-
serving the least in con-
venience to the people.

They state shortly
the nature of this system,
but do not enter into de-
tails, which, as it seems
to me, was unnecessary
inasmuch as Mr Bay-
ley has in his pamphlet
well described his propo-
sed system with a

fulcrum and division
which leaves nothing to
be desired -
For linear measurement
Committee recommended
as did Mr. Baily, that
the English yard & foot
be adopted - Mr. Baily
left the question of the
subdivision of the yard
and foot open but it
should be settled in
England, observing
however that both Parlia-
mentary Committees
that reported on the
subject of English weights
and measures in 1841
and 1854 had recom-
mended a decimal
subdivision, and that it
has already been ad-
opted ~~in~~ ⁱⁿ ~~the~~ ^{the}
regard the foot, by En-
-lish architects &
surveyors - The Com-
-mittee advise the
present English subdivi-
-sions by inches -
I am disposed to agree with them.

It would not exactly if the
seer be 5 pails short of
2 lbs - The measure of 50
seers would fall short of
the cut by $5 \times 80 = 250$ pails
about the total lower part
of the in appreciation

I concur with them

For superficial measure
- must Mr. Baily & the
Committee would take
the English Imperial
acre with decimal
subdivisions - This mea-
- sure so subdivided
is that solely in use in
the Indian Revenue.

Survey -
For weight Mr. Baily
proposed a seer of $77 \frac{3}{4}$
tolas (each of 180 grains)
which would be only
5 grains short of a dor-
-ber pound or 2 lbs.
avoiding the - He pro-
-posed that this seer be
subdivided into 16 lbs
as the present seer (of 80
tolas) is - For multiple
the recommended a
measure of 50 seers or exactly the
cut of 200 lbs -

The Committee adopt
the seer of exactly 2 lbs
avoiding the - but take
for this unit a tola of
175 grains, 80 of which

...of the pound being equal to 1
 ...

This is the pound as it
 has differ from the Bayley
 and I can't say that
 this part of the scheme
 seems to me an improve-
 ment upon his. It would
 it appears to me, be incon-
 -venient to have two
 to say on weight of
 175 grains, and one
 of currency at 180. Then
 may be some advantage,
 altho I do not think this
 is much, in having weights
 adjusted to a given
 currency - but I do not
 perceive the benefit of
 making a new weight
 for the purpose of testing
 or forming a standard.
 - If of our already
 well known. It would
 be better I think to start
 with the 24 den as the
 unit, and to subdivide
 it by the binary scale
 down to 16th or perhaps 32nd
 (103) -

* For example a bag of
 man or 2400 who wished
 to test his den would sel-
 -dom have 80 or 77 ³/₄ den
 by him to send on the test

That is a den exactly
 two pounds avoirdupois
 or five grains that

In 1811 I do not see

the pound avoirdupois
 or 2 den - subdivided
 into ounces/16. The diffi-
 -culty of introducing this,
 as indeed all English
 weight is and measure,
 I believe to be much
 overrated.

The first multiple
 of the den for pound/
 might be the man or
 manna of 50 den or
 100 lb. but if the English
 cut is even reduced to
 100 lb that name should
 be substituted for the
 manna or man. The

Manna or cut - should be
 subdivided into halves &
 quarters.

The Bayley does not
 go beyond the Manna,
 but the Committee sug-
 -gest a Candy = 20
 manna or one cor of
 2000 lb. The objection
 to this seems to be that the
 Candy is not like that of
 den and of true know-
 all on India, and that
 while it is in origin it is
 only equal to about 500
 or 600 lb or perhaps below
 the value which would
 be assigned it to be.

2000

Committee scale - when
the ton is reduced to
~~2000~~ ²⁰⁰⁰ lb it may prove
- to be introduced into
Indian mythology. ^{the}
= 20 cwt. For the present
perhaps in every sense
as Mr. May has done at the
Museum -

For measures of capacity
dry & liquid the
Committee & Mr. May have
recommended the Imperial
unit of capacity subdivided
by eight and ^{with} ~~into~~
multiple of 100 lbs.

The present ~~as~~ a liquid
measure, I may re-
mark, is already
recognized by our
Agricultural & Can-
-tonment Act.

With the few modifi-
-cations above noted the
scheme recommended
by the Committee might
in my opinion be adop-
-ted. In fact it
amounts to the introduc-
-tion of English & weights

and measures into
British India & met-
-ric of being put in
-portance. ~~the~~ ^{to} the
mode of introducing
the new system, I
must I consider be
expected by a legisla-
-tive enactment, but
its introduction should
be carried out finally
after fair notice & dis-
-cussion proce-
-ding the new stan-
-dard. We should
commence with the
Presidency cities,
large towns & Canton-
-ments, and then
proceed to the smaller
towns, places & rural
population. When the
system has been
uniformly
decided, ^{on} and authori-
-tatively laid down,
it will rapidly make
its way - for in this
many transactions,
in the Agricultural

1.
John, Com. in. ant.
P. in. work. & Odman
contracts. and at the
see custom houses. the
Railway Companies,
the Commercial Com. in.
-ing with all coope-
-ration toward the good
end.

May 8/65

178.
194
This is a subject on which
I should feel competent
to offer an opinion that is
wholly lacking of much, if any,
value - my personal of this
Committee report and con-
sideration of the other papers,
together with my recollections
of the circumstances of the case
felt & observed during a
long career in this country,
have however, satisfied
me that great general
advantage must result
from the introduction of
a system based on the
clear & simple supplanting
of the former one slightly
modified in the manner
proposed by the Hon. Mr.
Lyons -
29 June 65

Revenue 1865. Sept^r
P. Govt for Sept^r

Unite by the Honble
Mr. Pycroft.

28th May 1865.

Records his views
with reference to the remodel-
ing the ponderous system
of this Presidency -

No.
Minute by the Honble
Mr. W. D. Phillips.
Of 29th June 1860.

Recording his
minutes on the same
subject.

№ 562 + 563

May 5th Sat
Gladwin - 1965
Some Exp.

In referring to the
 Secy of the A.S.K. & L.
 Socy. in Council of 28
 June 1864. No. 3835-
 in the subject of the
 report of the High Com-
 missioner of the
 country. Can-
 didate I propose
 to the committee
 recently report
 a Committee of
 the Secy & consider
 the subject, by letter
 to the committee
 under a letter
 members of the Socy
 present of the
 Secy. & L.

Journal
of
the
Surrender
of
the
British
at
York
Sept 1781
L.H.

Sept 1781
York
L.H.

18

Received of the
Hon. Secy of the
Interior

The Secy of the
Interior of the
United States

Washington D.C.

From the Secy to the Govt of
California October 15 1882
15-11

Forwarded the report of
the Committee appointed to
investigate the subject of the
land with the allusion
to the

10560@564